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Operating manual

Label printer
Vario II series

June 2010

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Information on the scope of delivery, appearance, performance, dimensions and weight reflect our knowledge at the time of printing.

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Carl Valentin label printers comply with the following safety guidelines:

CE EG Low-Voltage Directive (2006/95/EC)
EG Electromagnetic Compatibility Directive (89/336/EEC)

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1 Important notes

The label printer can be used in thermal as well as in thermal transfer applications.

The label printer is equipped with 6 vector, 6 bitmap and 6 proportional fonts. It can be printed inverse, in italic format or 90 degrees turned fonts.

The handling of our durable label printer is easy and comfortable. The printer settings are made with the keys of the foil keyboard. At each time the two-line display shows the current status.

By the use of a 32 Bit processor and a large main memory of 4MB also for large labels (optional up to a length of 3000 mm) a large print is possible.

An enormously high print quality is obtained by most modern printhead technology.

By a new-developed electronics a maximum print speed of up to 200 mm/s can be achieved. Time-saving update of the printer software is possible via the interface. The label printer can be adapted by the large selection of options to each function.

As default, printers of this series are equipped with a parallel and serial interface. The label printer automatically recognizes by which interface it is controlled.

Time-saving printer update is possible by interface.

Thanks to the large number of options the label printer can be adapted to each task.

1.1 Intended use

The label printer is a state-of-the-art device which complies with the recognized safety-related rules and regulations. Despite this, a danger to life and limb of the user or third parties could arise and the label printer or other property could be damaged while operating the device.

The label printer may only be used while in proper working order and for the intended purpose. Users must be safe, aware of potential dangers and must comply with the operating instructions. Faults, in particular those which affect safety, must be remedied immediately.

The label printer is solely intended to print suitable media which have been approved by the manufacturer. Any other or additional use is not intended. The manufacturer/supplier is not liable for damage resulting from misuse. Any misuse is at your own risk.

Intended used includes heeding the operating manual, including the maintenance recommendations/regulations specified by the manufacturer.

1.2 Environmentally-friendly disposal

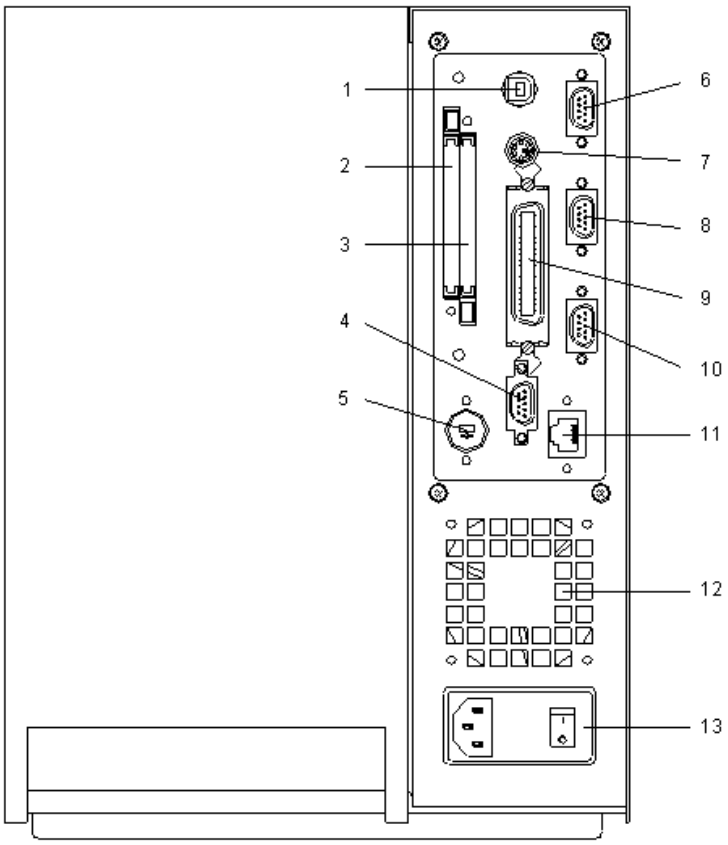
Manufacturers of B2B equipments are obliged to take-back and dispose old equipment which was manufactured after 13 August 2005. In principle, these old equipments may not be delivered to communal collecting points. They may only be organised used and disposed by the manufacturer. Valentin products accordingly labelled can therefore in future be returned to Carl Valentin GmbH.

Thereupon old equipment is professionally disposed.

Thereby Carl Valentin GmbH observes all obligations in the context of old equipment disposal in time and makes therewith the smooth selling of products furthermore possible. Please understand that we can only take-back equipment that is send free of carriage charges.

Further information is available from WEEE directive or our web site.

1.3 Connector pin assignment (printer rear)



1 USB interface
2 PCMCIA card slot A (option)
3 PCMCIA card slot B (option)
4 Serial interface RS-232
5 Connection for winder
6 Serial interface RS 422/485 (option)
7 Connection for PC keyboard
8 External input (option)
9 Parallel interface for Centronics
10 External output (option)
11 Connection for Ethernet 10/100 (option)
12 Fan
13 Power supply

Figure 1

2 Safety notes

The label printer is designed for power supply systems from 230V. Connect the label printer only to electrical outlets with a ground contact.

Couple the label printer to devices using extra low voltage only.

Before making or undoing connections, switch off all devices involved (computer, printer, accessories etc.).

Operate the label printer in a dry environment only and do not get it wet (sprayed water, mist etc.).

If the label printer is operated with the cover open, ensure that clothing, hair, jewellery and similar personal items do not contact the exposed rotating parts.

The print unit can get hot during printing. Do not touch the printhead during operation. Cool down the print unit before changing material, removal or adjustment.

Carry out only the actions described in these operating instructions. Other tasks may only be performed by trained personnel or service technicians.

2.1 Warnings

Warnings are presented with three signal words for the different levels of danger.

DANGER identifies an extraordinarily great and immediate danger which could lead to serious injury or even death.

WARNING identifies a possible danger would could lead to serious bodily injury or even death if sufficient precautions are not taken.

CAUTION indicates a potentially dangerous situation which could lead to moderate or light bodily injury or damage to property.

2.2 Operating conditions

Before initial operation and during operation these operating conditions have to be observed to guarantee save and interference-free service of our printers.

Therefore please carefully read these operating conditions.

Shipment and storage of our printers are **only** allowed in original packing.

Installation and initial operation of printer is only allowed if operating conditions were **fulfilled**.

Initial operation, programming, operation, cleaning and service of our printers are only recommended after careful study of our manuals.

Operation of printer is only allowed by especially trained persons.

Perform trainings regularly.

These indications are also valid for someone else's equipment supplied by us.

Only use original spare and exchange parts.

Instructions for lithium battery

CPU of printer is equipped with a lithium battery (type CR 2032) for which the battery regulation is to apply. This regulation plans that unloaded batteries have to be given to used battery collecting containers of trade and public carries. In case that batteries were not completely discharged you have to make arrangements for short-circuits. At a shutdown of printer the battery has to be disposed in either case separately from printer.

DANGER!

Danger of life by explosion!

⇒ Use nonconducting tools.

Conditions for installation place

The installation place of printer should be even, free of vibration and currents of air are to be avoided.

The printers have to be installed to ensure optimal operation and servicing.

Installation of power supply

The installation of the power supply to connect our printers has to be effected according to the international rules and regulations, especially the recommendations of one of the three following commissions:

- International Electronic Commission (IEC)
- European Committee for Electro technical Standardisation (CENELEC)
- Verband Deutscher Elektrotechniker (VDE)

Our printers are constructed according to VDE and have to be connected to a grounded conductor. The power supply has to be equipped with a grounded conductor to eliminate internal interfering voltage.

Technical data of power supply

Power line voltage and power line frequency: See type plate

Allowable tolerance of power line voltage: +6% to −10% of nominal value

Allowable tolerance of power line frequency: +2% to −2% of nominal value

Allowable distortion factor of power line voltage: <=5%

Anti-Interference measures

In case your net is infected (e.g. by using thyristor controlled machines) anti-interference measures have to be taken. You can use one of the following possibilities:

- Provide separate power supply to our printers.
- In case of problems please connect capacity-decoupled isolation transformer or similar interference suppressor in front of our printers.

Stray radiation and immunity from disturbance

Emitted interference according to EN 61000-6-4: 08-2002

- Interference voltage to wires according to EN 55022: 09-2003
- Interference field power according to EN 55022: 09-2003

Immunity to interference according to EN 61000-6-2: 03-2006

- Stray radiation against discharge of static electricity according to EN 61000-4-2: 12-2001
- Electromagnetic fields according to EN 61000-4-3: 11-2003
- Fast transient burst according to EN 61000-4-4: 07-2005
- Surge according to EN 61000-4-5: 12-2001
- High-frequency tension according to EN 61000-4-6: 12-2001
- Voltage interruption and voltage drop according to EN 61000-4-11: 02-2005

This is a machine of type A. This machine can cause interferences in residential areas; in this case it can be required from operator to accomplish appropriate measures and be responsible for it.

Connecting lines to external machines

All connecting lines have to be guided in shielded lines. Shielding has to be connected on both sides to the corner shell.

It is not allowed to guide lines parallel to power lines. If a parallel guiding cannot be avoided a distance of at least 0.5 m has to be observed.

Temperature of lines between: −15 to +80 °C.

It is only allowed to connect devices which fulfil the request 'Safety Extra Low Voltage' (SELV). These are generally devices which are checked corresponding to EN 60950.

Installation of data lines

The data cables must be completely protected and provide with metal or metallised connector housings. Shielded cables and connectors are necessary, in order to avoid radiant emittance and receipt of electrical disturbances.

Allowable lines	
Shielded line:	4 x 2 x 0,14 mm² (4 x 2 x AWG 26) 6 x 2 x 0,14 mm² (6 x 2 x AWG 26) 12 x 2 x 0,14 mm² (12 x 2 x AWG 26)

Sending and receiving lines have to be twisted in pairs.

Maximum line length:	with interface V 24 (RS-232C) - 3 m (with shielding)
	with Centronics - 3 m (with shielding)
	with USB - 5 m
	with Ethernet - 100 m

Air convection

To avoid inadmissible heating, free air convection has to be ensured.

Limit values

Protection according IP: 20

Ambient temperature °C (operation): Min. +5 Max. +45

Ambient temperature °C (storage): Min. −20 Max. +60

Relative air humidity % (operation): Max. 80

Relative air humidity % (storage): Max. 80

(bedewing of printers not allowed)

Guarantee

We do not take any responsibility for damage caused by:

- Ignoring our operating conditions and operating manual.
- Incorrect electric installation of environment.
- Building alterations of our printers.
- Incorrect programming and operation.
- Not performed data protection.
- Using of not original spare parts and accessories.
- Natural wear and tear.

When (re)installing or programming our printers please control the new settings by test running and test printing. Herewith you avoid faulty results, reports and evaluation.

Only specially trained staff is allowed to operate the printers.

Control the correct handling of our products and repeat training.

We do not guarantee that all features described in this manual exist in all models. Caused by our efforts to continue further development and improvement, technical data might change without notice.

By further developments or regulations of the country illustrations and examples shown in the manual can be different from the delivered model.

Please pay attention to the information about admissible print media and the notes to the printer maintenance, in order to avoid damages or premature wear.

We endeavoured to write this manual in an understandable form to give and you as much as possible information. If you have any queries or if you discover errors, please inform us to give us the possibility to correct and improve our manual.

3 Technical data

Vario II 104/8

Print	
Passage width	110 mm
Min. label width	15 mm
Min. label height	6 mm
Max. label height	
Standard	2800 mm
Option Ethernet	2500 mm
Print width	104 mm
Label material	max. 220 gr/m² (others on demand)
Resolution	203 dpi
Print speed	max. 200 mm/s
Printhead	Flat Type
Built-in fonts	
Vector fonts	6 free scaleable BITSTREAM® fonts
Bitmap fonts	6
Proportional fonts	6
Font height	min. 1 mm - max. 99 mm
1D bar codes	
CODABAR, Code 128, Code 2/5 interleaved, Code 39, Code 39 extended, Code 93, EAN 13, EAN 8, EAN ADD ON, GS1-128 (EAN 128), Identcode, ITF 14, Leitcode, Pharmacode, PZN Code, UPC-A, UPC-E	
2D bar codes	
CODABLOCK F, DataMatrix, MAXICODE, PDF 417, QR Code	
Composite bar codes	
GS1 DataBar Expanded, GS1 DataBar Limited, GS1 DataBar Omnidirectional, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Truncated	
Interface	
Serial: RS-232C (up to 57600 bauds), RS-422 + RS-485 (option)	
Parallel: Centronics	
USB: 1.1	
Ethernet: 10/100 Base-T (option)	
Labels	
Roll diameter	internal unwinder: max. 200 mm internal rewinder: max. 100 mm
Core diameter	40 mm / 75 mm (option)
Label sensor	
Standard	Transmission
Option	Reflexion bottom + top
Transfer ribbon	
Core diameter	25,4 mm / 1"
Length	max. 300 m
Dimensions	
width x height x depth	230 x 310 x 450
Weight	16 kg
Connection values	
Nominal voltage	
Standard	230 V / 50-60 Hz − Fuse: 1 AT
Option	115 V / 50-60 Hz − Fuse: 2 AT
Power consumption	max. 150 VA
Operating conditions	
Temperature	5-35 °C
Relative humidity	max. 80% (non-condensing)

Vario II 107/12

Print	
Passage width	110 mm
Min. label width	15 mm
Min. label height	6 mm
Max. label height	
Standard	1200 mm
Option Ethernet	1100 mm
Print width	106,6 mm
Label material	max. 220 gr/m² (others on demand)
Resolution	304 dpi
Print speed	max. 200 mm/s
Printhead	Flat Type
Built-in fonts	
Vector fonts	6 free scaleable BITSTREAM® fonts
Bitmap fonts	6
Proportional fonts	6
Font height	min. 1 mm - max. 99 mm
1D bar codes	
CODABAR, Code 128, Code 2/5 interleaved, Code 39, Code 39 extended, Code 93, EAN 13, EAN 8, EAN ADD ON, GS1-128 (EAN 128), Identcode, ITF 14, Leitcode, Pharmacode, PZN Code, UPC-A, UPC-E	
2D bar codes	
CODABLOCK F, DataMatrix, MAXICODE, PDF 417, QR Code	
Composite bar codes	
GS1 DataBar Expanded, GS1 DataBar Limited, GS1 DataBar Omnidirectional, GS1 DataBar Stacked, GS1 DataBar Stacked Omnidirectional, GS1 DataBar Truncated	
Interface	
Serial: RS-232C (up to 57600 bauds), RS-422 + RS-485 (option) Parallel: Centronics USB: 1.1 Ethernet: 10/100 Base-T (option)	
Lables	
Roll diameter	internal unwinder: max. 200 mm internal rewinder: max. 100 mm
Core diameter	40 mm / 75 mm (option)
Label sensor	
Standard	Transmission
Option	Reflexion bottom + top
Transfer ribbon	
Core diameter	25,4 mm / 1"
Length	max. 300 m
Dimensions	
width x height x depth (mm)	230 x 310 x 450
Weight	16 kg
Connection values	
Nominal voltage	
Standard	230 V / 50-60 Hz − Fuse: 1 AT
Option	115 V / 50-60 Hz − Fuse: 2 AT
Power consumption	max. 150 VA
Operating conditions	
Temperature	5-35 °C
Relative humidity	max. 80% (non-condensing)

Standard equipment

- Date / time
- integrated unwinder
  (max. outside diameter 200 mm / 8"
- integrated rewinder
  (max. outside diameter 100 mm)
- IBM keyboard connection
- Thermal and thermal transfer version
- Label photocell
  (transmission and reflexion from bottom)
- Windows printer driver

Optional equipment

- Tear-off edge
- Cutting unit
- Dispensing unit
- Alphanumeric keyboard
  (German, English, French, Spanish)
- External unwinder PA50
  (max. outside diameter 300 mm)
- External rewinder PR45
  (max. outside diameter 270 mm)
- Memory card slot
- PCMCIA cards: 256 KB, 512 KB, 1 MB, 2 MB
- RS422 interface
- RS485 interface
- Ethernet interface
- I/O board
- Label creation software Labelstar PLUS

3.1 Control inputs and outputs (option I)

Control outputs

Via signal outputs various operating modes of the printer can be demanded.

The signal outputs are made available vial two 9-pin D-Sub-sockets (Output 1) at the rear of the Control Unit. They consist of opto-integrator semiconductor lines which are switched through res. blocked out corresponding to the different operating modes.

In case a control output is active, then the corresponding output is to strain with a maximum current of 30mA.

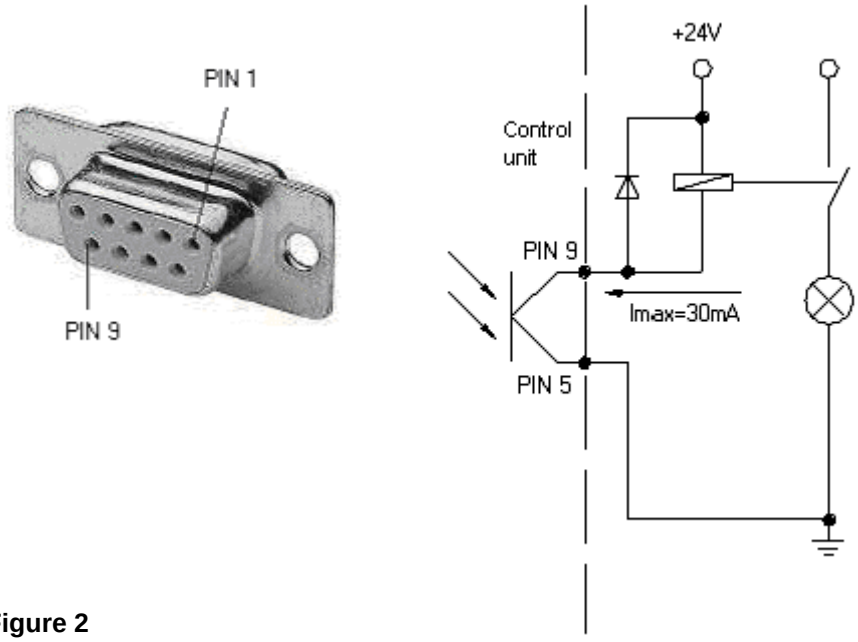
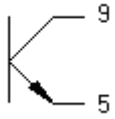
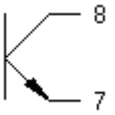
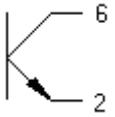
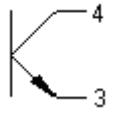


Figure 2

PIN (socket)	Output I
	Out 1: Error message Each error status such as ribbon error is displayed.
	Out 2: Print order The printer was activated with a print order. Now print start by IN1 is possible.
	Out 3: Label generation The printer is filled with current label data. In case in dispensing mode either dispensing photocell or dispensing photocell continuous is selected it is indicated if a label is under photocell and ready to pick up.
	Out 4: Single print The contents of printer memory is printed to the corresponding medium by printhead.

Control inputs

Via the control input the print start signal is lead to the control unit. The control input is electroplated separated and has to be provided with an external tension source. The signal level is active "HIGH".

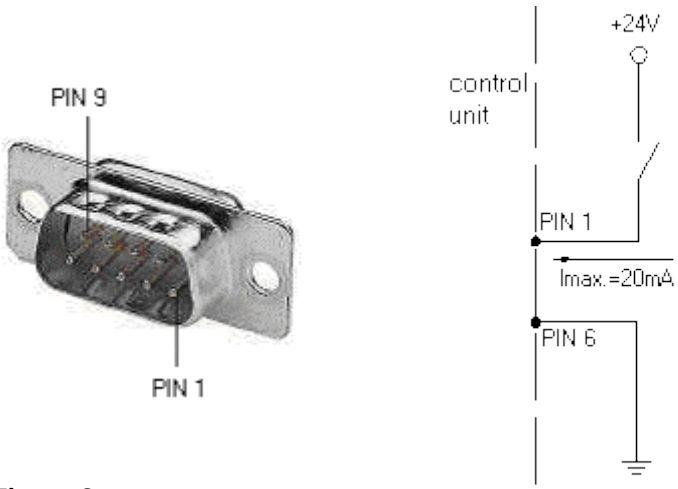
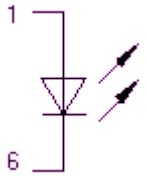
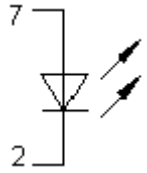
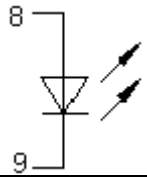
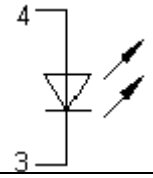


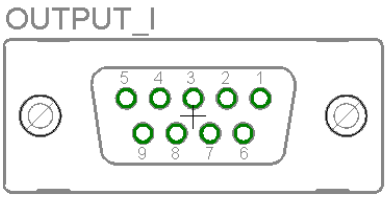
Figure 3

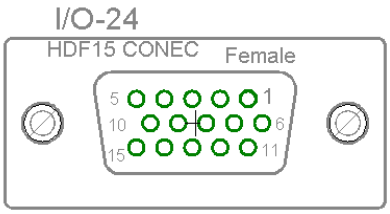
PIN	Input I
	In 1: Print start
	In 2: Not used
	In 3: Not used
	In 4: Not used

3.2 Control inputs and outputs (option II)

For special applications, an I/O plate with 24 V supply and special options is available.

Back view of I/O connector.

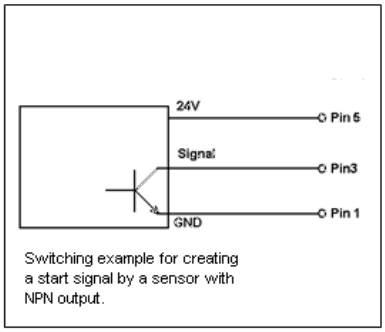




Output I is identical to option I.
The I/O-24 connector is 15-pole and provides user-sided 24 V for pins 5 and 10 for supplying the sensors (max. 200 mA).
Pin 1, 6 and 11 are equipped with GND. In case of using I/O-24 signals, exist no galvanic separation.

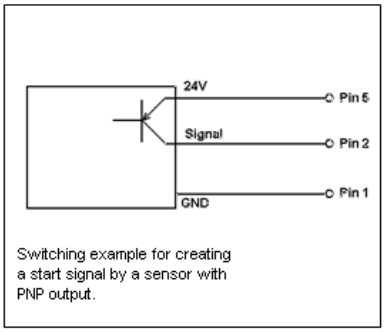
The other connection possibilities of I/O-24 connector can be noticed from the below switching examples.

Example 1:



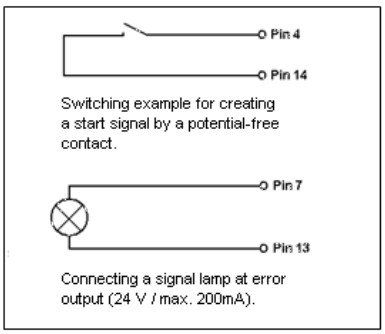
Switching example for creating a start signal by a sensor with NPN output.

Example 2:



Switching example for creating a start signal by a sensor with PNP output.

Example 3:



Switching example for creating a start signal by a potential-free contact.

Connecting a signal lamp at error output (24 V / max. 200mA).

3.3 Plug & Play

Plug & Play capable printers can be recognised automatically at parallel ports, USB-IEEE 1394- or infra-red connections but the last both are not important for our printers.

The following table shows the Plug & Play capability of the different operating systems.

Port		Windows					
		95	98	Me	NT4	2000	XP
LPT	Support	✓	✓	✓	✓	✓	✓
	Recognition by	Boot procedure, device manager			✗		Installation
USB	Support	✗	✓	✓	s.b.	✓	✓
	Recognition by	✗	Hot Plug & Play		s.b.	Hot Plug & Play	

The table above shows that USB provides the recognition during the connection in current operating mode, the so-called Hot-Plug & Play. The following possibilities exist for parallel port:

- Windows 95 / 98 / Me
  Printers are recognised during the start procedure by Windows or by the search for new hardware by means of the hardware wizard.
- Windows 2000 / XP
  Printers can be recognised during the start procedure by Windows or by the search for new hardware by means of the hardware wizard or, if the option 'Automatic recognition and installation of Plug & Play printers' is set in the printer installation wizard. For Windows XP the Hot Plug & Play when switching on the printer is obviously possible.

Windows NT 4.0 does not support USB devices. However, some distributors offer drivers that support USB (without Plug & Play). Such a driver which suits to our printer is offered from BSQUARE.
For more information, visit their web side: www.bsquare.com or contact

BSQUARE Headquarters (USA)
888-820-4500
sales @bsquare.com

BSQUARE (Europe)
+49 (811) 600 59-0
europe@bsquare.com

4 Installation

Unpack the label printer

⇒ Lift the label printer out of the box.

⇒ Check the label printer for transport damages.

⇒ Check delivery for completeness.

Scope of delivery

- Label printer.
- Empty core, mounted on transfer ribbon rewinder.
- Dispenser edge (printers with dispenser option only).
- Power cable.
- Documentation.
- Printer driver CD.

Retain original packaging for subsequent transport.

4.1 Setting up the label printer

CAUTION!

The label printer and the print media can be damaged by moisture and water.

⇒ Set up the label printer only in a dry place protected from sprayed water.

⇒ Set up label printer on a level, vibration-free and air draught-free surface.

⇒ Open cover of label printer.

⇒ Remove foam transportation safeguards near the printhead.

4.2 Connecting the label printer

Connecting to the power supply

The label printer is equipped with a versatile power supply unit. The device may be operated with a mains voltage of 230 V / 50-60 Hz without any adjustments or modifications.

CAUTION!

The label printer can be damaged by undefined switch-on currents.

⇒ Set de power switch (1) to '0' before plugging in the label printer.

⇒ Insert power cable into power connection socket (2).

⇒ Insert plug of power cable into a grounded electrical outlet.

Connecting to a computer or to a computer network

Insufficient or missing grounding can cause faults during operation.

Ensure that all computers and connection cables connected to the label printer are grounded.

⇒ Connect label printer to computer or network with a suitable cable.

4.3 Switching the label printer on and off

Once all connections have been made:

⇒ Switch label printer on witch the power switch.
After switching on the label printer the main menu appears which shows the printer type, current date and time.

4.4 Initiation of the label printer

After switching on the label printer the main menu appears which shows the printer type, current date and time.

Insert label material and transfer ribbon (see chapter 5. Loading media, on page 25).

Start measuring in menu 'Label Measurement' (see chapter 8.3, on page 58

Press key ● to finish measuring.

To enable correct measuring, at least two completed labels have to be passed through (not for continuous labels).

During measuring the label and gap length small differences can occur. Therefore the values can be set manually in the menu 'Printer initialisation/Label and Gap'.

5 Loading media

5.1 Loading media

Loading label roll in rewind mode

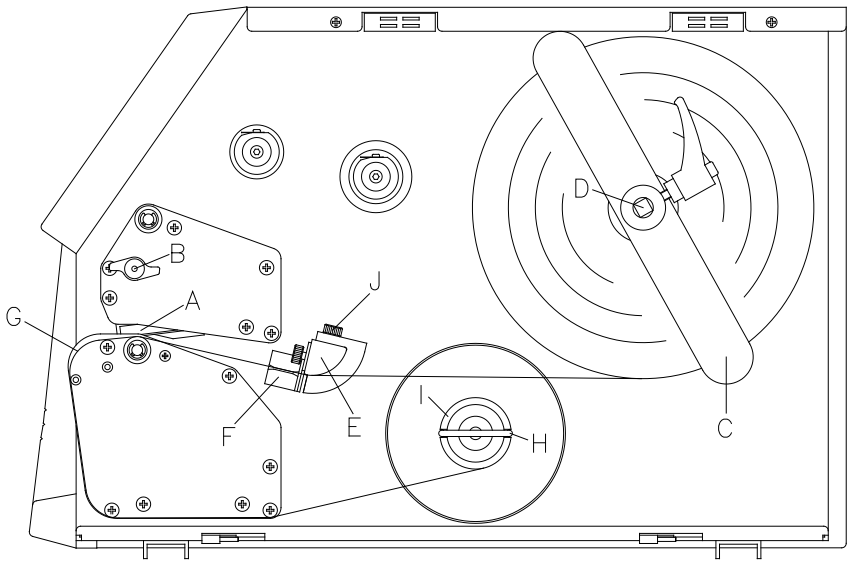


Figure 4

In rewind mode the labels are wound up internally after printing for later use.

1. Open the printer cover.
2. Open the printhead (A) by turning the pressure lever (B) anticlockwise.
3. Remove the outside label mounting plate (C).
4. Load the label roll with inner winding onto the unwinding roll (D).
5. Attach again the label mounting plate (C).
6. Lead the label material below the label guiding (E).
   Take care that the material runs through the photocell (F).
7. Place the labels around the front sheet (G) and lead them below the mechanics to the rear.
8. Clamp the label material, with the handle (H) designated for it, at the rewinding roll (I).
9. To move the printhead (A) down, turn the pressure lever (B) in clockwise direction until it locks.
10. Adjust the limit stops (J) of the label guiding roll to the width of material.
11. Close the printer cover.

Loading label roll in tear-off mode

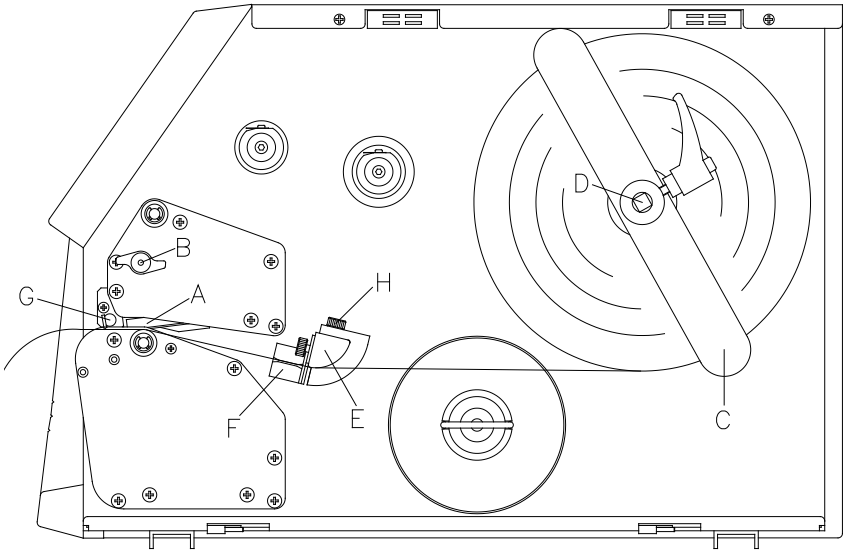


Figure 5

1. Open the printer cover.
2. Open the printhead (A) by turning the pressure lever (B) anticlockwise.
3. Remove the outside label mounting plate (C).
4. Load the label roll with inner winding onto the unwinding roll (D).
5. Attach again the label mounting plate (C).
6. Lead the label material below the label guiding (E).
   Take care that the label runs through the photocell (F).
7. To move the printhead (A) down, turn the pressure lever (B) in clockwise direction until it locks.
8. In front of the printhead the tear off edge (G) is visible.
9. Enter the offset value in menu 'Printer Initialisation/Tear off' (see chapter 8.4, on page 59).
10. Adjust the limit stops (H) of the label guiding to the width of material.
11. Close the printer cover.

Loading label roll in cutter mode

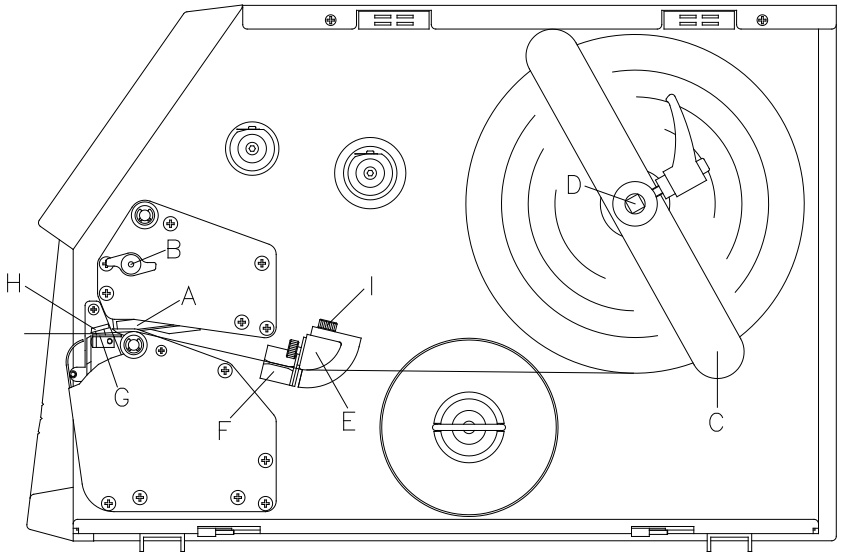


Figure 6

1. Open the printer cover.
2. Open the printhead (A) by turning the pressure lever (B) anticlockwise.
3. Remove the outside label mounting plate (C).
4. Load the label roll with inner winding onto the unwinding roll (D).
5. Attach again the label mounting plate (C).
6. Lead the label material below the label guiding (E) and the printhead (A).
   Take care that the label runs through the photocell (F).
7. Lead the label material between the inserting angle (G) and the cutter ledge (H).
8. To move the printhead (A) down, turn the pressure lever (B) in clockwise direction until it locks.
9. Adjust the limit stops (I) of the label guiding to the width of material.
10. Close the printer cover.

Loading label roll in peel off mode

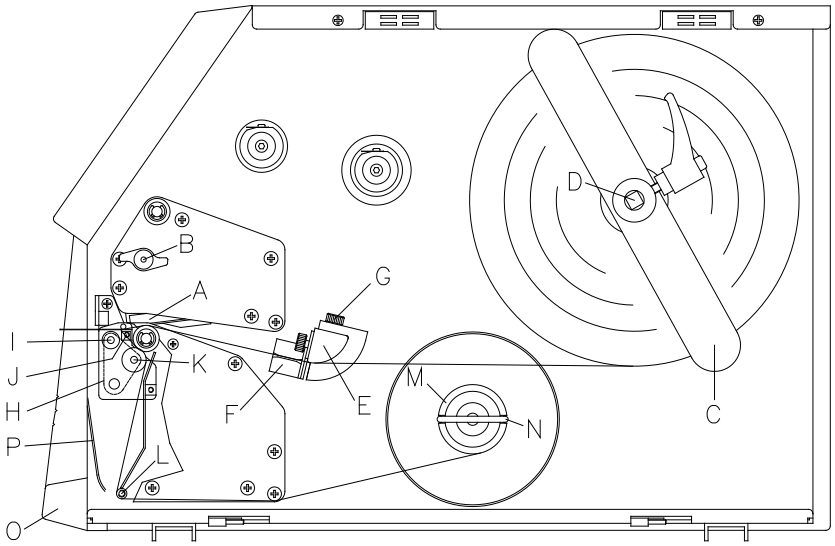


Figure 7

1. Remove the small front panel (O).
2. Remove the cover plate (P) by turning it to the front.
3. Open the printer cover.
4. Open the printhead (A) by turning the pressure lever (B) anticlockwise.
5. Remove the outside label mounting plate (C).
6. Load the label roll with inner winding (minimum label height = 15 mm) onto the unwinding roll (D).
7. Attach again the label mounting plate (C).
8. Lead the label material below the label guiding (E) and printhead (A). Take care that the labels run through the photocell (F).
9. Lift the dispensing whip (H) to the front/bottom by pulling the shaft at the side (I) to the inside.
10. To move the printhead (A) down, turn the pressure lever (B) in clockwise direction until it locks.
11. Adjust the limit stops (G) of the label guiding to the width of material.
12. Strip some labels from the backing paper and lead the paper over the dispenser ledge (J) and behind the plastic roll (K).
13. Press again the dispensing whip (H) to the top and lock it.
14. Place the backing paper around the shaft (L) and fix it with the clamp (N) at the rewinding unit (M).
15. Enter the offset value in menu 'Printer Initialisation/Dispenser offset' (see chapter 8.4, on page 59).
16. Close the printer cover.

5.2 Loading transfer ribbon

For the thermal transfer printing method it is necessary to load a ribbon, otherwise when using the printer in direct thermal print it is not necessary to load a ribbon. The ribbons used in the printer have to be at least the same width as the print media. In case the ribbon is narrower than the print media, the printhead is partly unprotected and this could lead to early wear and tear.

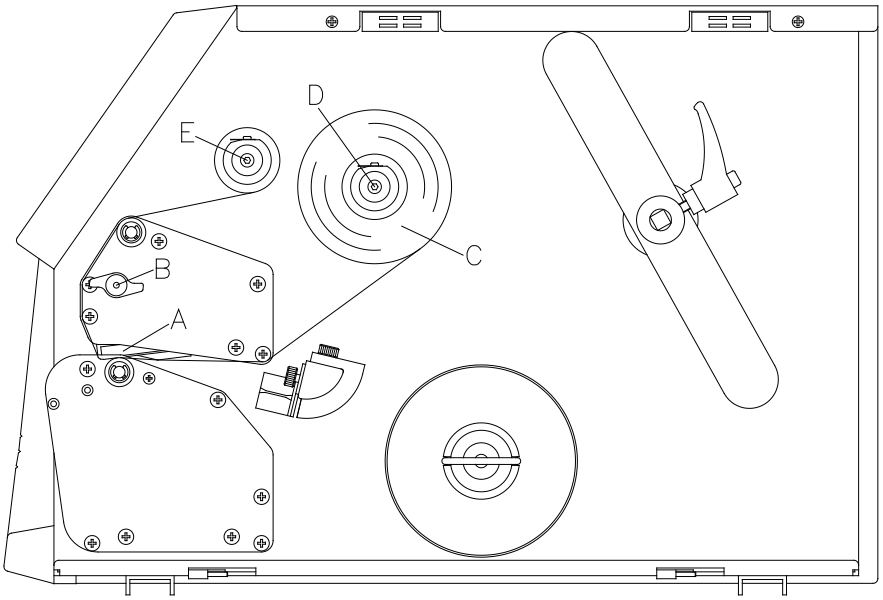


Figure 8

As for the electrostatic unloading the thin coating of the thermal printhead or other electronic parts can be damaged, the transfer ribbon should be antistatic.
The use of wrong materials can lead to printer malfunctions and the guarantee can expire.

1. Clean printhead before loading the transfer ribbon (see chapter 10.3 Cleaning the printhead, on page 91).
2. Open the printer cover.
3. Open printhead (A) by turning the pressure lever (B) anticlockwise.
4. Load the transfer ribbon roll (C) with outer winding onto the unwinding roll (D).
5. Place an empty ribbon roll on the rewinding roll (E).
6. Lead the transfer ribbon below the printhead.
7. Fix the ribbon with an adhesive tape in rotating direction at the empty roll of the rewinding roll (E).
8. To move the printhead (A) down, turn the pressure lever (B) in clockwise direction until it locks.
9. Close the printer cover.

6 Foil keyboard

6.1 Keyboard assignment (standard)

Key	Meaning	Function
III	Main menu	Back to main menu. Activate test print. Delete stopped print order.
▲	Up	Increase values.
▼	Down	Decrease values.
F	Function menu	Change to function menu. In function menu, one menu item back.
◣	Feed	In main menu, one label feed. In function menu, change to next menu item.
●	Start/Stopp	Confirm settings in function menu. Stop and continue current print order. Delete stopped print order with key III. No further label of the print order is printed.
💾	Memory	Change to memory card card menu.
🗐	Quant	Change to number of copies menu. Press keys ▲ and ▼ to select the number of copies that are to print.
▶	Forwards	Change to next input field. Press keys ▲ and ▼ to change values.
◀	Backwards	Change to previous input field. Press keys ▲ and ▼ to change values.
text	Text entry menu	Change to the entry of text mask. Press key again to change to the text entry.
code	Code entry menu	Change to the entry of code mask. Press key again to change to the code entry.
0 - 9	Function keys	Parameter selection (e.g. speed).
F1 + F2	Function keys	No function.
C	Function key	Delete complete entry.
E	Funcion key	Confirm entry. After confirmation of settings, return to the main menu.

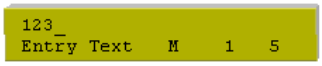
6.2 Keyboard assignment (text entry/customized)

The printer is equipped with an alphanumeric character block which allows the user to enter parameters and customised variables without the connection of an external keyboard. Each key contains letters and similar to the use of a mobile phone (like sms) a direct and time-saving input is possible.

Selection of input mode

In order to select the entry mode, the printer has to be in main menu.

Press key text twice and the display indicates the following.



The mode is displayed in the first line (example: M) so the user can control in which input mode is selected. Press key to select and/or change the desired input mode.

As the input is almost done with characters from one mode, the characters are divided in different groups. Following input modes are available:

Symbol	Mode
0	Standard, starting with figures
M	Starting with capital letters
m	Starting with small letters
A	Input Alt
a	Input Alt, is switched off after one character

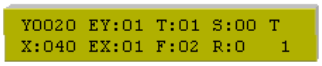
Mode 0
This mode is displayed as default. At first the figure which corresponds to the key is displayed, then all capital and afterwards the small letters.
Mode M
At first all capital, then the small letters and at last the corresponding figure.
Mode m
At first all small letters, then the figure and at last the capital letters.
Mode A
This mode can be used for the creation of special characters. The desired character can be displayed by the assigned number by entering the ANSI code. Please note that the ANSI code has to consist of three digits, i.e. you have possible to enter a zero first.
Mode a
Same as mode A. After input of the selected ANSI code the machine, however, changes back to the previously selected input mode.

Key	Meaning	Function
III	Main menu	Back to main menu. Activate test print. Delete stopped print order.
▲	Up	For customized variables, change between single entries.
▼	Down	For customized variables, change between single entries.
F	Funktion menu	No function.
↵	Feed	Entry confirmation. Change to the main menu.
●	Start/Stop	Confirmation/end of entry.
💾	Memory	Entry mode selection.
⧉	Quant	Delete character at cursor position. If the cursor is behind the last character, the last one is deleted. Character is only deleted if it was before entered by the character block.
▶	Forwards	Cursor one position to the right.
◀	Backwards	Cursor one position to the left.
0 - 9	Character block	Entry of desired data.
F1 + F2	Function keys	No function.
C	Function key	Delete complete entry. The entry is only deleted if it was entered by the character block.
E	Function key	Confirm entry. After confirmation of settings, return to the main menu.

7 Label creation

7.1 Bitmap fonts

Mask entry



Press key text and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from the upper label margin to the lower left point of the corresponding line.

EY - Extension in direction Y
Extension of font in direction y (factor 1 - 9)

T - Selection of font type
01 - regular font
02 - regular font inverse
10 - rectangle
11 - line

S - Spaces between characters
min.: 1 x 0,083 mm - max.: 99 x 0,083 mm

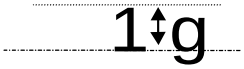
X - Distance from right side in mm
It is measured from the right label margin to the lower left point of the corresponding line.

EX - Extension in direction X
Extension of font in direction x (factor 1 - 9)

F - Selection of font

Bitmap not proportional	**Matrix (mm)**	
01 = FONT 01	0,8 x 1,1	127 characters
02 = FONT 02	1,2 x 1,7	255 characters
03 = FONT 03	1,8 x 2,6	255 characters
04 = FONT 04	4,0 x 5,6	127 characters
05 = FONT 05	1,8 x 3,2 descender	255 characters
07 = FONT 07	1,2 x 2,2 descender	255 characters

Bitmap proportional	Height (mm)	
21 = FONT 21	1,0	255 characters
22 = FONT 22	1,8	255 characters
23 = FONT 23	2,6	255 characters
24 = FONT 24	5,6	255 characters
28 = FONT 28	4,0	255 characters
29 = FONT 29	0,8	255 characters

base line  height; pixels

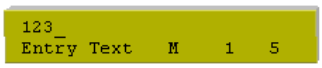
To reach best print results it is recommended always to chose the biggest possible font!

R - Rotation of line
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees
(see also Rotation of text, code and graphic, on page 53).

Text entry

Press key text to change from mask entry to the text entry of the first line.

A maximum entry of 70 characters per text line is possible.



0 = Indication of input mode

1 = Field number

5 = Character number

Press key ◀ and ▶ to move the cursor.

Press key to delete single characters.

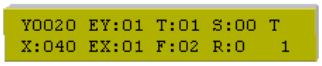
Press key ● to access the text entry for the next line.

Press key text to return to the mask entry.

Press key ||| to quit the text entry.

7.2 Vektor fonts

Mask entry



Press key text and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from the upper label margin to the lower left point of the corresponding line.

EY - Extension in direction Y
Height of font in mm

T - Selection of font type
04 - Vector fonts proportional
05 - Vector fonts autoscale
06 - Vector fonts proportional inverse
07 - Vector fonts autoscale inverse

Proportional:
In case of using proportional, then font height and width are displayed in mm. These values refer to the first letter, i.e. the values of other characters were modified correspondingly.

Autoscale:
In case of using autoscale, then the font height and width are displayed in mm. The font height refers to all capital letters. The height of small letters and descenders is modified proportionally. The complete field width is entered as width and the entered text is automatically fit to this field, i.e. the width of the characters changes.

S - Spaces between characters

Proportional:	min.: 1 x 0,083 mm - max.: 99 x 0,083 mm
Autoscale:	no function, because the width of the characters is fit to the field width

X - Distance from right side in mm
It is measured from the right label margin to the lower left point of the corresponding line.

EX - Extension in direction X

Proportional:	character width in mm (factor 1 - 99, should be the same as EY)
Autoscale:	field width in mm (up to 99 mm)

S - Selection of font

01 = Helvetica Bold	255 characters
02 = Helvetica Bold italic	255 characters
03 = Helvetica Roman	255 characters
04 = Helvetica Roman italic	255 characters
05 = Swiss Light	255 characters
06 = Swiss Light italic	255 characters
07 = Baskerville	255 characters
08 = Baskerville italic	255 characters
09 = Brush Script	255 characters
10 = Brush Script italic	255 characters
11 = Monospace	255 characters
12 = Monospace italic	255 characters

R - Rotation of line

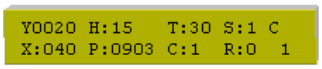
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees
(see also Rotation of text, code and graphic, on page 53).

Text entry

For information about text entry of vector fonts, please see chapter 7.1 Bitmap fonts, on page 35.

7.3 1D bar codes

Mask entry



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from the upper label margin to the lower left point of the corresponding line.

H - Height of bar code in mm
min: 5 mm - max: 99 mm

T - Type of bar code

30	Code 39	alphanumeric (capital letters) and - . SPACE * $ / + %
31	Code 2/5 interleaved	numeric, even number of digits
32	EAN 8	numeric, fix number of 8 digits
33	EAN13	numeric, fix number of 13 digits
34	UPC-A	numeric, fix number of 12 digits
35	UPC-E	numeric, fix number of 8 digits
36	CODABAR	numeric and - : / . + (start/stop sign)
37	Code 128	ASCII font (Code A, B, C) automatic selection of font
38	EAN ADD ON	EAN 13 + 2 or 5 digits
39	GS1-128 (EAN 128)	ASCII font (Code A, B, C) automatic selection of font
40	Code 93	alphanumeric (capital letters) and - . SPACE * $ / + %
41	PZN-Code	7 digits, see Code 39
43	Leitcode	numeric, even number of digits
44	Identcode	numeric, even number of digits
46	Code 39 extended	ASCII font
47	Code 128 A	ASCII font (Code A)
48	Code 128 B	ASCII font (Code B)
49	Pharmacode	numeric, fix number of 9 digits
50	PDF417	2D bar code
51	MAXICODE	2D bar code
52	DataMatrix	2D bar code
53	CODABLOCK F	2D bar code
54	RSS Codes	Composite bar codes
57	QR Code	2D bar code

S - Human readable
0 = without - 1 = with

X - Distance from the right side in mm
It is measured from the right label margin to the lower left point of the corresponding line.

P - Proportion of bar code
Certain conditions for ratio, SC factor res. module width are valid for the supported bar codes.

Bar code	Ratio / Module width / SC factor	Entry
Code 39, Code 2/5, CODABAR, Code 39 extended, Pharmacode	Ration thick:thin min. 3:1 (0301)	variable
EAN 8 / EAN 13 / UPC-A / UPC-E	vario 104/8 SC factor 0 SC factor 3 SC factor 6 SC factor 8 vario 107/12 ~ SC factor 0 SC factor 2 ~ SC factor 4 SC factor 6 SC factor 9	 0000 0003 0006 0008 0000 0002 0004 0006 0009
Code 128 / GS1-128 (EAN 128) / Code 93	Module width 1 – 9	0001 - 0009
EAN ADD ON	SC-Zahl 0	0000

C - Check digit calculation (P = 0 → without check digit)

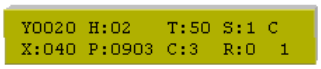
Bar code	P =	
Code 39 / Code 39 ext.	1 2	with check digit (HIBC-Code, modulo 43); check digit is not shown in display and as human readable but coded check digit control
Code 2/5	0 1 2	without check digit; odd number of digits: 0 is automatically placed to the 1st position with check digit; odd number of digits: check digit is added to the last position even number of digits: check digit overwrites the last position check digit control

Codeart	**P =**	
Code ITF 14	1	corresponds to the entry of Code 2/5 with check digit calculation; minimum ratio 21:7 and entry of 13 res 14 digits 13 digits: a 14th digit is added as check digit 14 digits: last digit is overwritten with the check digit
Code ITF 16	1	corresponds to the entry of Code 2/5 with check digit calculation; minimum ratio 21:7 and entry of 15 res 16 digits 15 digits: a 16th digit is added as check digit 16 digits: last digit is overwritten with the check digit
Code 128 / GS1-128 (EAN 128)	1	with check digit (modulo 103); check digit is not shown in display and as human readable but coded
EAN 8 / 13 / UPC-A / E / EAN ADD ON	X	entry is not important because the check digit is always calculated except C = 2 → check digit control
CODABAR	X	no check digit
Code 93	0, 1 2	with check digit (modulo 47); check digit is not shown in display and as human readable but coded check digit control
PZN-Code	0, 1 2	with check digit (modulo 11); 7th digit is overwritten as check digit check digit control

R - Rotation of bar code
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees
(see also Rotation of text, code and graphic, on page 53).

7.4 2D Barcodes

Mask entry PDF417



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of the corresponding line.

H - Height of symbol
It is not possible to indicate the symbol size of the PDF417 in mm or similar dimensions but in discreet numbers. The following table shows the obtainable symbol sizes for different resolutions.

Size	200 DPI	300 DPI
1		
2		
3		X
4	X	
5		X
6		
7		
8	X	X
9		
10		
11		X
12	X	
13		X
14		
15		
16	X	X
17		
18		
19		X
20	X	
21		X
22		
23		
24	X	X

T - Type of code
50 = PDF417

S - Human readable
0 = PDF417 has no human readable.
This function provides the possibility to select the desired style of PDF bar code.
0 = Standard, 1 = Truncated, 2 = Naked, 3 = Bare

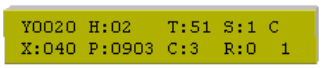
X - Distance from side in mm
Is measured from right label margin to lower left point of the corresponding line.

P - Proportion of height/width
It is not possible to create the symbol with a defined height res. width because the necessary space depends on the label contents.

C - Error Correction Level ECL
Possible entry = 0-8; From support of different procedures the PDF417 is able to rebuild destroyed information. The higher the ECL the saver is the code. However, the symbol is also growing higher.

R - Rotation of code
0 = 0 degrees 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees
(see also Rotation of text, code and graphic, on page 53).

Mask entry MAXICODE



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of the corresponding line.

H - Height of symbol
It is not possible to modify the symbol size and therefore the height of the symbol is always 0.

T - Type of code
51 = MAXICODE

S - Human readable
0 = MAXICODE has no human readable

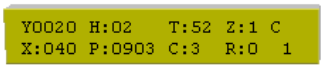
X - Distance from right side in mm
It is measured from right label margin to lower left point of the corresponding line.

P - Proportion symbol number/quantity of symbols
Ratio of the present symbol numbers (in case that several MAXICODE symbols are onto the same label) to the total number of defined MAXICODE symbols is indicated (generally for a symbol: 0101).

C - Mode
It is possible to create the MAXICODE in three different modes (mode 2, 3 and 4).

R - Rotation of code
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees (see also Rotation of text, code and graphic, on page 53).

Mask entry DataMatrix



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of the corresponding line.

H - Height of symbol
Zoom factor, the entry is possible in 1/10 mm steps between 01 and 99

T - Type of code
52 = DataMatrix

Z - Format ID
The format ID describes the format of data which is to code.

Entry interface	Format ID	Data to code
0	11	numeric, 2000 characters
1	1	numeric, 500 characters
2	2	alphabetical, 500 characters
3	3	alphabetical + pointers, 500 characters
4	4	alphanumeric, 500 characters
5	5	7 Bit, 500 characters
6	6	8 Bit, 500 characters
7	7	pre-programmed, 500 characters
8	12	alphabetical, 2000 characters
9	14	alphanumeric, 2000 characters

The format IDs which are displayed in grey are not supported from the printer.
In case ECC 200 is set then it is not possible to evaluate the format ID. In this case at least 3116 numeric res. 2335 alphanumeric signs are possible.

X - Distance from right side in mm
It is measured from right label margin to upper left point of the corresponding line.

P - Proportion symbol number/quantity of symbols
The symbol size (height/width in rows) of DataMatrix bar code depends on the set ECC level.
In case you set 0 for proportion height/width then height/width is calculated by means of the data. Nevertheless it is also possible to set manually corresponding to the following notes:

ECC from 0 to 140

height in rows = width in rows (square symbol)
height/width odd
minimum height/width = 9 (indication software library)
the minimum height/width depends additionally on the coded data and ECC level
maximum height/width = 49 (indication software library)

ECC of 200

square and rectangular symbols possible
even height/width
minimum height/width = 8 (indication software library)
the minimum height depends on the coded data
maximum height/width = 144 (indication software library)

Allowed proportions:

10:10	12:12	14:14	16:16	18:18	20:20
22:22	24:24	26:26	32:32	36:36	40:40
44:44	48:48	52:52	64:64	72:72	80:80
88:88	96:96	**8:18**	**8:32**	**12:26**	**12:36**
16:36	**16:48**	104:104	120:120	132:132	144:144

It is NOT possible to enter the proportions 104:104 to 144:144 in StandAlone mode.

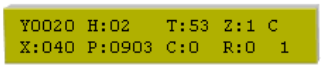
C - Error Correction Code
It is possible to set various levels of ECC. This setting has an effect to the size of the bar code symbol (see proportion height/width). Special case is ECC 200 which operates with the Reed-Solomon-Algorithms. In the software library are ECC levels defined as ECC types 0 to 26. The selection of ECC level results by entry of 0..9 from the following table.

Entry interface	ECC type	ECC level	Overhead
0	0	0	0 %
1	2	40	33 %
2	3	50	25 %
3	6	80	33 %
4	8	100	50 %
5	9	110	75 %
6	10	120	50 %
7	11	130	67 %
8	12	140	75 %
9	26	200	

ECC levels that are displayed in grey are not specified and therefore not supported from the printer.

R - Rotation of code
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees (see also Rotation of text, code and graphic, on page 53).

Mask entry CODABLOCK F



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of corresponding line.

H - Height of one line in symbol
Indication of height in mm of a line in bar code symbol.

T - Type of code
53 = CODABLOCK F

Z - Module size
Indication of corresponding factor.

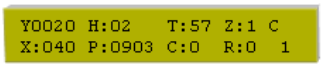
X - Distance from right side in mm
It is measured from right label margin to upper left point of corresponding line.

P - Number of characters/line
The first two figures specify the number of characters (2 up to max. 61) and the last two figures specify the number of lines (max. 22).

C - Mode
No setting possible.

R - Rotation of code
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees (see also Rotation of text, code and graphic, on page 53).

Mask entry QR Code



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of corresponding line.

H - Module width
Width of a module (rectangle) in mm

T - Type of code
57 = QR Code

Z - Character set
Used character set for coding of data.

Mode	Data sector	Data density
N = Numeric	Figures 0-9 (ASCII 0x30-ASCII 0x39)	3 signs/ 10 Bit
A = Alphanumeric	Figures **0 - 9** (ASCII 0x30 - ASCII 0x39) Letters **A - Z** (ASCII 0x41 - ASCII 0x5A) Special characters **SP** (ASCII 0x20), **$** (ASCII 0x24), **%** (ASCII 0x25),***** (ASCII 0x2A), **+** (ASCII 0x2B), - (ASCII 0x2D), **.** (ASCII 0x2E), **/** (ADCII 0x2F), **:** (ASCII 0x3A)	2 signs/ 11 Bit
B = 8-bit Byte	Character set 8-bit Latin/Kana	1 sign / 8 Bit
K = Kanji	Character set Kanji (shifted)	1 sign / 13 Bit

X - Distance from right side in mm
It is measured from right label margin to upper left point of corresponding line.

V - Code model/Masking
The first two figures specify the code model:
Model 1 – old, use only because of compatibility reasons
Model 2 – current state for new systems

The last two figures specify the masking:
Evenly / good structured distribution of pale and dark sectors inside the symbol.

1 = Automatic masking
0-7 = Manual selection
8 = No masking - direct acception of symbol

P - Error correction level
In order to guarantee in case of damages of the symbol (abrasion, unsatisfactory print) further the correctness of data, there are three different levels of error correction:

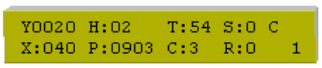
Level	Recovery capacity
L	7 %
M	15 %
Q	25 %
H	30 %

For the execution of error correction, further code words with data for the error correction according to fixed given samples are added to the code words with reference data. Correspondingly the number of reference data decreases.
By means of the error correction the following error types can be recognised and removed:

- Erasures: Not decodable / readable code word at known position.
- Errors: Wrong decoded code word at unknown position.

R - Rotation of code
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees
(see also Rotation of text, code and graphic, on page 53).

Mask entry
Composite bar code



Press key code and the display indicates the following text mask:

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of the corresponding line.

H - Module width
Because of the fact that it is impossible to enter a symbole height for RSS code you have to enter a value between 1 and 12 for module width.

T - Type of code
54 = RSS

S - Human readable
0 = RSS has no human readable

X - Distance from right side in mm
It is measured from right label margin to upper left point of the corresponding line.

V Segments per line / Symbol type
Because of the fact that it is impossible to enter a ration for RSS code, you can enter for the first two digits the number of segments per line (2 – 22)* and with the last digits you can enter an indication for symbol type (1 – 12).

Indication for symbol type
1 - RSS
2 - RSS-14 Truncated
3 - RSS-14 Stacked
4 - RSS-14 Stacked Omnidirectional
5 - RSS Limited
6 - RSS Expanded Stacked
7 - UPC-A
8 - UPC-E
9 - EAN 13
10 - EAN 8
11 - UCC/GS1-128 (EAN 128) with CC-A or CC-B
12 - UCC/GS1-128 (EAN 128) with CC-C

P - Distance correction
Not used

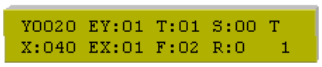
D - Rotation of code
0 = 0 degrees, 1 = 90 degrees, 2 = 180 degrees, 3 = 270 degrees
(see also Rotation of text, code and graphic, on page 53).

* only necessary for RSS Expanded

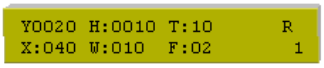
7.5 Rectangle

Mask entry

Press key text and the display indicates the following text mask:



Press key **E** as long as cursor reached A, then enter 10 for rectangle.



Press key **E** again and the display indicates the following for the entry of mask.

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to lower left point of the rectangle.

H - Height of rectangle
Indication of height in mm.

T - Selection of line type
10 = Rectangle

X - Distance from right side in mm
It is measured from right label margin to lower left point of the rectangle.

W - Width of rectangle
Indication of rectangle in mm.

F - Line thickness
Value of F x [0,125]* 0,083 mm

* Indications in [ ] correspond to printers with 200 dpi

7.6 Line graphic

By means of the line graphic mode it is possible to create vertical and horizontal as well as squares and rectangles.

Mask entry

Press key [text] and the display indicates the following text mask:

```
Y0020 EY:01 T:01 S:00 T
X:040 EX:01 F:02 R:0   1
```

Press key **E** as long as cursor reached A, then enter 11 for line.

```
Y0020 S0010 T:11      L
X:020 R:0   F:02       1
```

Press key **E** again and the display indicates the following for the entry of mask.

Press key **E** to access the next field.

Selected values are only accepted if the entry was confirmed with key ●.

Press key ▲ and ▼ to increase and/or decrease the number of mask record (number of lines).

Y - Distance from top in mm
It is measured from upper label margin to upper left point of the line.

S - Length of line
Length of line in mm

T - Selection of line type
11 = line (difference see R = rotation)

X - Distance from right side in mm
It is measured from right label margin to lower left point of a line.

R - Rotation of line
0 = horizontal line (as 0 degrees)
1 = vertical line (as 90 degrees)

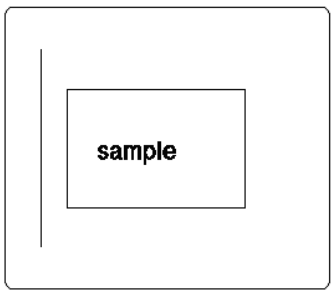
F - Line thickness
Value of F x [0,125]* 0,083 mm

* Indications in [ ] correspond to printers with 200 dpi

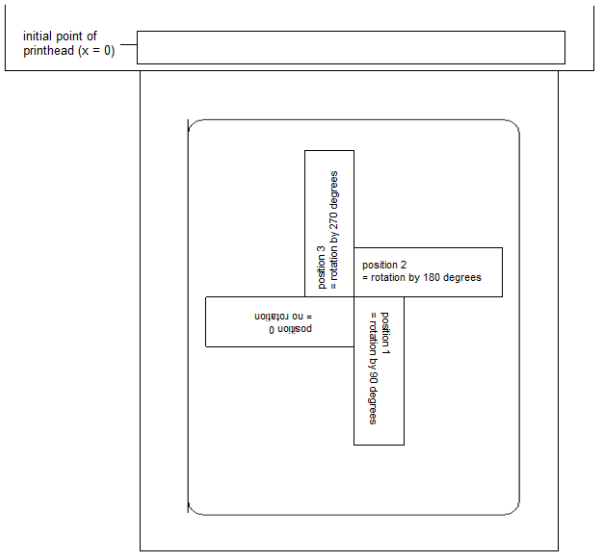
Example label line graphic

1. line	'068'	Enter	distance from upper label margin
	'56'	Enter	length of line
	'11	Enter	line
	'03'	Enter	thickness of line
	'089'	Enter	distance from right label margin
	'1'	Enter	vertical line
2. line	'057'	Enter	distance from upper label margin
	'034'	Enter	height
	'10'	Enter	rectangle
	'03'	Enter	thickness of line
	'081'	Enter	distance from right label margin
	'055'	Enter	width
3. line	'043'	Enter	distance from upper label margin
	'05'	Enter	extension in direction of y
	'04'	Enter	font style
	'02'	Enter	spaces between characters
	'072'	Enter	distance from right label margin
	'05'	Enter	extension in direction of x
	'03'	Enter	font type
	'0'	Enter	no rotation

example **entry of text**

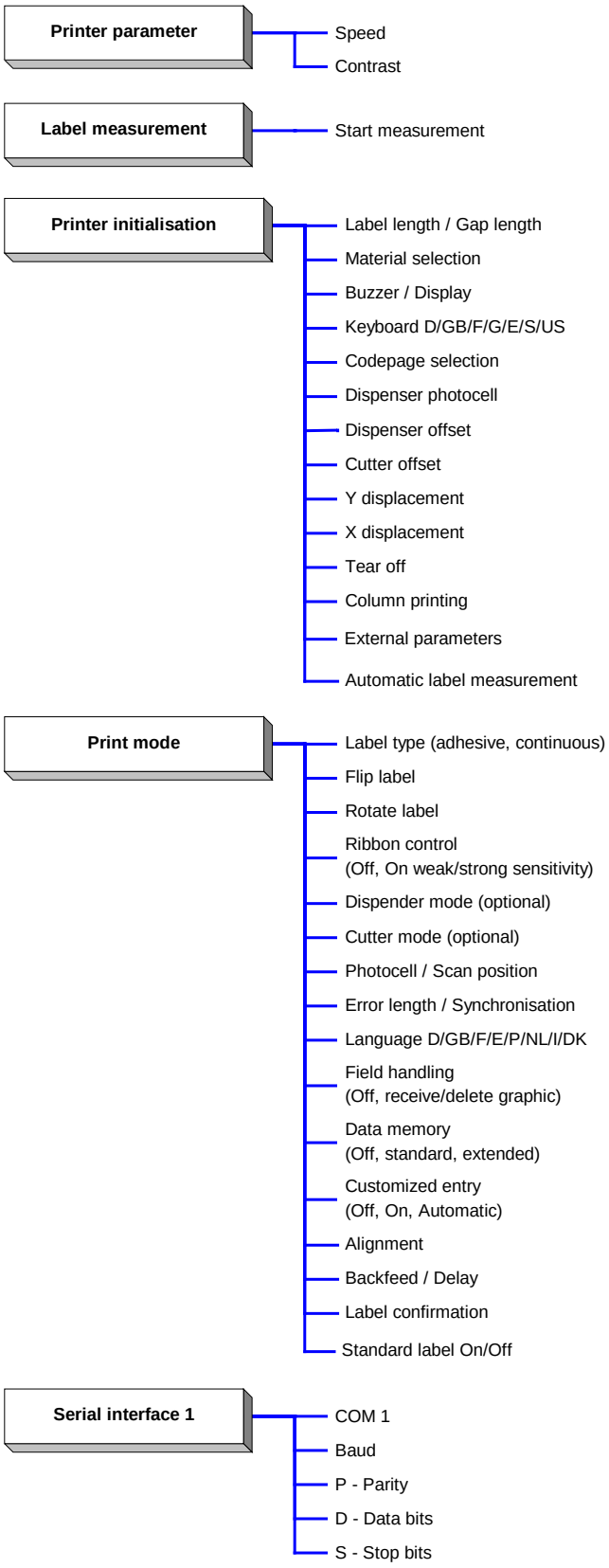


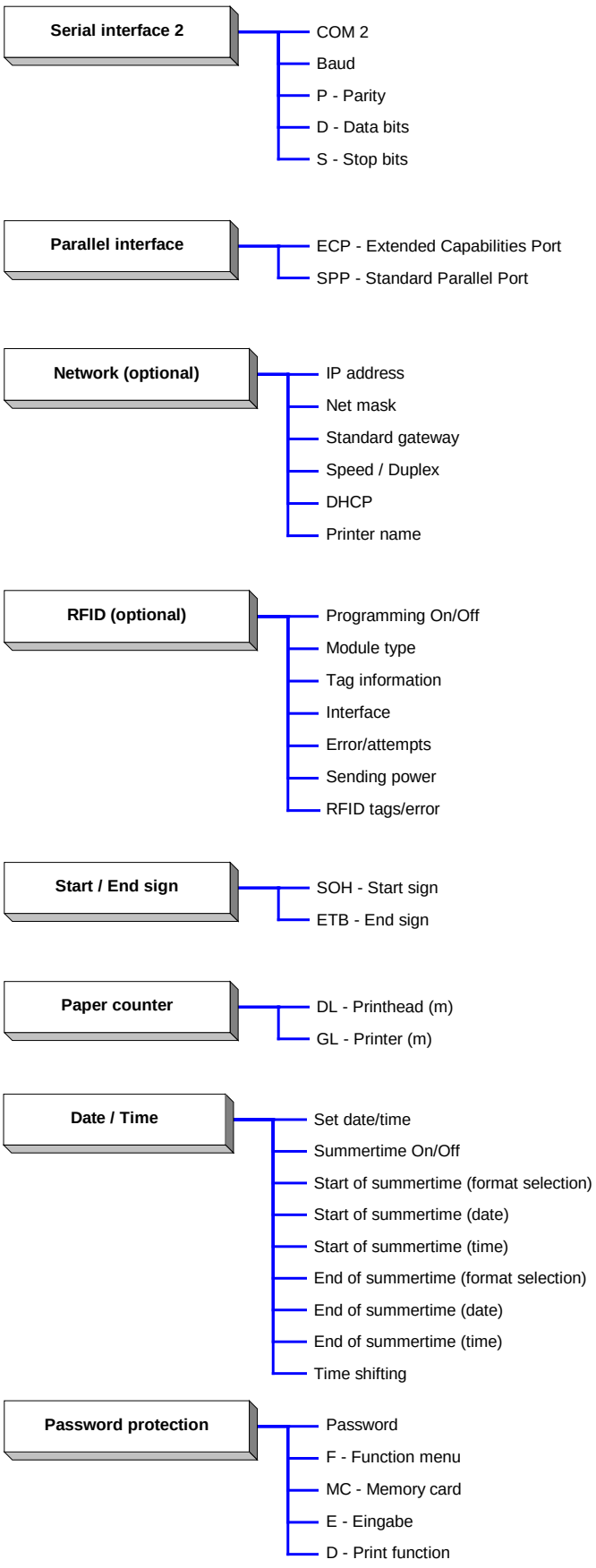
Rotation of text, code and graphic

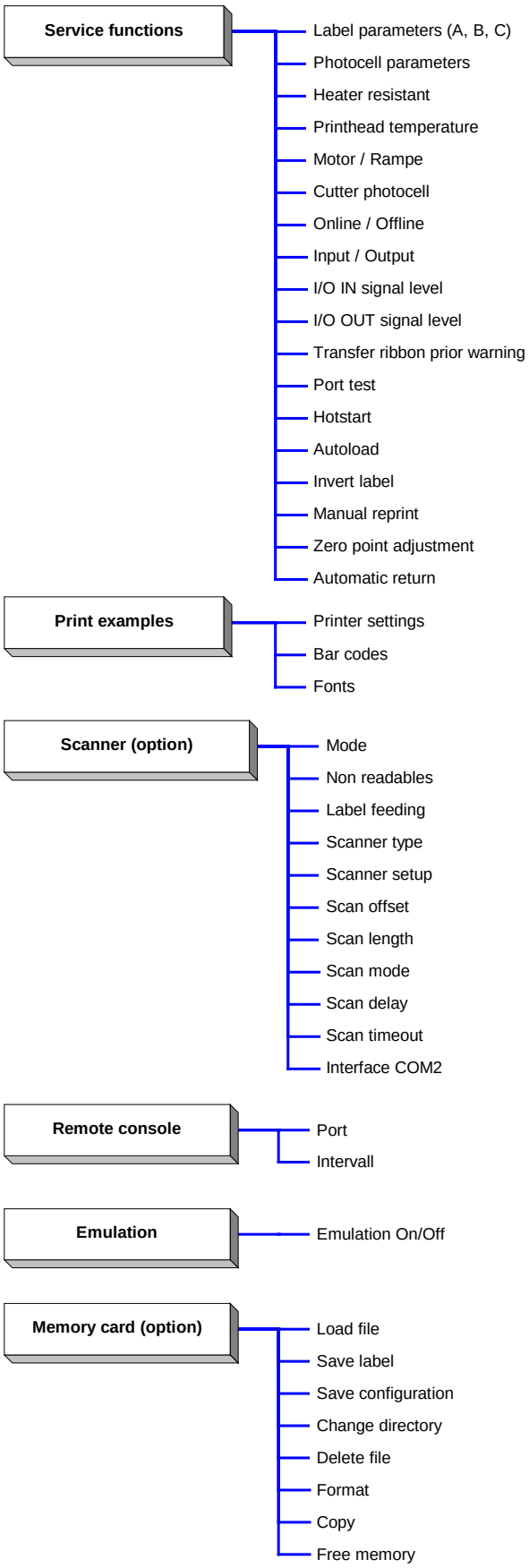

initial point of printhead (x = 0)
position 3 = rotation by 270 degrees
position 2 = rotation by 180 degrees
position 0 = no rotation
position 1 = rotation by 90 degrees

8 Function menu

8.1 Menu structure

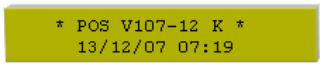



Serial interface 2
COM 2
Baud
P - Parity
D - Data bits
S - Stop bits
Parallel interface
ECP - Extended Capabilities Port
SPP - Standard Parallel Port
Network (optional)
IP address
Net mask
Standard gateway
Speed / Duplex
DHCP
Printer name
RFID (optional)
Programming On/Off
Module type
Tag information
Interface
Error/attempts
Sending power
RFID tags/error
Start / End sign
SOH - Start sign
ETB - End sign
Paper counter
DL - Printhead (m)
GL - Printer (m)
Date / Time
Set date/time
Summertime On/Off
Start of summertime (format selection)
Start of summertime (date)
Start of summertime (time)
End of summertime (format selection)
End of summertime (date)
End of summertime (time)
Time shifting
Password protection
Password
F - Function menu
MC - Memory card
E - Eingabe
D - Print function

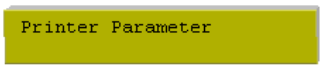

Service functions
Label parameters (A, B, C)
Photocell parameters
Heater resistant
Printhead temperature
Motor / Rampe
Cutter photocell
Online / Offline
Input / Output
I/O IN signal level
I/O OUT signal level
Transfer ribbon prior warning
Port test
Hotstart
Autoload
Invert label
Manual reprint
Zero point adjustment
Automatic return
Print examples
Printer settings
Bar codes
Fonts
Scanner (option)
Mode
Non readables
Label feeding
Scanner type
Scanner setup
Scan offset
Scan length
Scan mode
Scan delay
Scan timeout
Interface COM2
Remote console
Port
Intervall
Emulation
Emulation On/Off
Memory card (option)
Load file
Save label
Save configuration
Change directory
Delete file
Format
Copy
Free memory

8.2 Printer parameter

After switching on the label printer, the display shows the following:



Press key F to access the function menu.



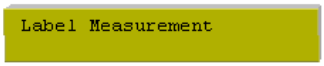
Press key ● to select the menu.

Speed:
Indication of print speed in mm/s.
Value range: 50 mm/s to 200 mm/s
Step size: 10 mm/s
Contrast:
Indication of contrast in %.
Value range: 10% to 200 %.
Step size: 10%

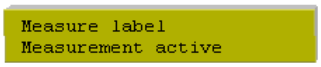
8.3 Label measurement

Press key F to access the function menu.

Press key ◣ as long as you arrive at the 'Label Measurement' menu.



Press key ● to select the menu.



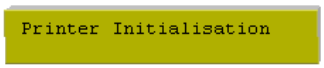
Press key ● to confirm the enquiry. Press key ● again to start the measuring procedure. During the procedure, the display indicates the following.

The determined values are displayed and saved.

8.4 Printer initialisation

Press key F to access the function menu.

Press key ▲ as long as you arrive at the 'Printer Initialisation' menu.



Press key ● to select the menu.

Label:
Indication of label length in mm (see Technical data, on page 13).
Gap:
Indication of distance between two labels in mm
(not for continuous labels).
Minimum value: 1 mm.

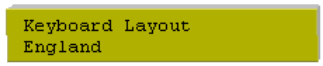
Press key ▲ to arrive at the next menu item.

Material:
Selection of the used label and transfer ribbon material.

Press key ▲ to arrive at the next menu item.

Buzzer:
On: An acoustic signal is audible when pressing a key.
Off: No signal is audible.
Display:
Setting of display contrast.
Value range: 0 to 7.

Press key ▲ to arrive at the next menu item.



Keyboard layout:
Selection of region for the desired keyboard layout.
The following possibilities are available: Germany, England, France, Greece, Spain, Sweden and US.

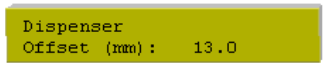
Press key ▲ to arrive at the next menu item.

Codepage:
Indication of the font used in the printer.
The following possibilities are available:
ANSI character set / Codepage 437 / Codepage 850 / GEM German / GEM English / GEM French / GEM Swedish / GEM Danish

Press key ▲ to arrive at the next menu item.

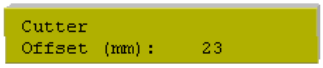
Photocell switch level:
First value = Indication of current photocell level.
Second value = Indication if a label (value = 1) or if no label (value = 0) was found.
Third value = Indication of switch level. The modification of this value is only taken into consideration for the operating modes Photocell and Photocell continuous.

Press key ▲ to arrive at the next menu item.



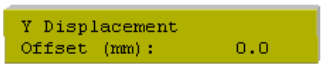
Dispenser:
Indication of dispenser offset.
Standard value: 13 mm.

Press key ▲ to arrive at the next menu item.



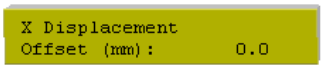
Cutter:
Indication of cutter offset.
Standard value: 23 mm.

Press key to arrive at the next menu item.



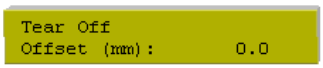
Y displacement:
Indication of initial point displacement in mm. The label is moved vertically.
Value range: −30.0 to +90.0.

Press key to arrive at the next menu item.



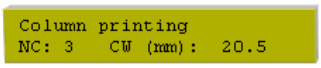
X displacement:
Indication of displacement in X direction. The fields on the label are moved.
Value range: −90.0 to +90.0.

Press key to arrive at the next menu item.



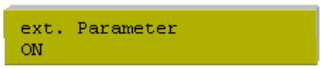
Tear off:
Indication of value to which the last label of a print order is moved forward and is moved back to the label start at a new print start. Labels can be torn after termination of the print order without a loss of labels by tearing.
Default: 12 mm.
Value range: 0 to 50.0 mm.

Press key to arrive at the next menu item.



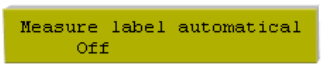
Column printing:
NC: Indication of number of columns that are placed side by side on the backing paper.
CW: Indication of column width (see chapter 12.1 Column printing, on page 107).

Press key to arrive at the next menu item.



External parameters:
On: Sending parameters such as print speed and contrast via our label creation software to the printer. Parameters which are set directly at the printer before are no longer considered.
Off: Only settings made directly at the printer are considered.

Press key to arrive at the next menu item.



Measure label automatically:
On: After switching on the printer, the loaded label is automatically measured.
Off: In order to start the measurement procedure you have to change to the corresponding menu.

8.5 Print mode

Press key F to access the function menu.

Press key ▙ as long as you arrive at the 'Print Mode' menu.

```
Print Mode
```

Press key ● to select the menu.

```
Type of Label
Adhesive
```

Label type:
Generally adhesive labels are set. Press key ▲ to select continuous labels. If the menu label length/gap length contains a gap value, this value is added to the label length.

Press key ▙ to arrive at the next menu item.

```
Flip label
Off
```

Flip label:
The axis of reflection is in the middle of the label. If the label width was not transferred to the printer, automatically the default label width i.e. the width of the printhead is used. It is recommended to use labels with the same width as the printhead. Otherwise this can cause problems in positioning.

Press key ▙ to arrive at the next menu item.

```
Rotate label
On
```

Rotate label:
According to standard the label is printed ahead with a rotation of 0°. If the function is activated, the label is rotated by 180° and printed in reading direction.

Press key ▙ to arrive at the next menu item.

```
Ribbon Control
ON weak sensitivity
```

Transfer ribbon control:
Examination if the transfer ribbon roll is to end or if the ribbon was torn at the unwinding roll.
Off: The ribbon control is deselected, i.e. the printer continues without an error message.
On: The ribbon control is selected, i.e. the current print order is interrupted and an Error Message appears at the printer display.
strong sensibility: The printer reacts immediately to the end of the transfer ribbon.
weak sensibility: The printer reacts at approx. 1/3 more slowly to the end of the transfer ribbon.

Press key ▙ to arrive at the next menu item.

```
Dispenser
Ext. I/O static
```

Dispenser mode:
To operate the printer in dispensing mode a print order has to be started and the printer has to be in 'waiting' mode.
By means of key ▲ you can switch to the next operating mode (see chapter 9.2 Dispenser, on page 76).

Press key ◢ to arrive at the next menu item.

```
Cutter without backfeed
Control automatic
```

Cutter:

The cutter menu is only displayed if the printer recognises the option by the cutter photocell when switching on the printer.

The first line indicates the selected cutter operating mode. In the second line it is possible by means of key ▲ to select the desired control mode.
In case you select automatic, then a cut is released after each printed label. If you select external, then the cut is released by an external I/O. Please note that you can select external in case your printer is equipped with option external I/O.

Press key ▲ to change to the next operating mode (see chapter 9.1Cutter, on page 75).

Press key ◢ to arrive at the next menu item.

```
Photocell              SP
Transmission normal    10
```

Photocell:
Selection of the used photocell.
The following photocell types can be selected: Transmission photocell normal and inverse, reflexion photocell normal and inverse (see chapter 12.5 Photocells, on page 114).
Scan position (SP):
Entry of percental label length by that the label end is searched. Marks onto the label can be skipped.

Press key ◢ to arrive at the next menu item.

```
Errorlength Synchron.
mm:  150    OFF
```

Label error length:
In case an error occurs, indication after how many mm a message appears in the display.
Value range: 1 mm to 999 mm.
Synchronisation:
On: If a label is missed on the liner an error message is displayed.
Off: Missing labels are ignored, i.e. it is printed into the gap.

Press key ◢ to arrive at the next menu item.

```
Printer Language
English
```

Printer language:
Selection of language in which you want to display the text in the printer display.
At the moment the following languages are available: German, English, French, Spanish, Portuguese, Dutch, Italian, Danish, Finnish or Polish.

Press key ◢ to arrive at the next menu item.

```
Field Handling
OFF
```

Field handling:
Off: The complete print memory is deleted.
Keep graphic: A graphic res. a TrueType font is transferred to the printer once and stored in the printer internal memory. For the following print order only the modified data is transferred to the printer. The advantage is the saving of transmitting time for the graphic data. The graphic data created by the printer itself (internal fonts, bar codes, ...) is generated only if they were changed. The generating time is saved.
Delete graphic: The graphics res. TrueType fonts stored in the printer-internal memory is deleted but the other fields are kept.

Press key ◢ to arrive at the next menu item.

Data Memory
Extended

Data memory:
Standard: After starting a print order the printer buffer receives data as long as it is filled.
Advanced: During a current print order data is received and processed.
Off: After starting a print order no more data is received.

Press key ◢ to arrive at the next menu item.

Customized Entry
Auto

Customized entry:
On: The question referring the customized variable appears once before the print start at the display.
Auto: The question referring the customized variable appears after every printed label.
Off: No question appears at the display. In this case the stored default value is printed.

Press key ◢ to arrive at the next menu item.

Alignment
Left

Alignment:
The adjustment of label is effected only after 'flip/rotate label', i.e. the adjustment is independent of the functions flip and rotate label.
Left: The label is aligned at the left-most position of printhead.
Centre: The label is aligned at central point of printhead.
Right: The label is aligned at right-most position of printhead.

Press key ◢ to arrive at the next menu item.

Backfd. Standard
Delay (s): 0.60

Backfeed / Delay:
Backfeed: The backfeed was optimised in the operating modes dispenser (optional), cutter (optional) and tear off. Now, when driving into the offset, the following label is 'pre-printed' if possible and therefore the backfeed of label is no necessary and time can be saved.
Delay: The adjustable deceleration time is only for mode 'backfeed automatic' of importance (see chapter 12.4 Backfeed/delay, on page 112).

Press key ◢ to arrive at the next menu item.

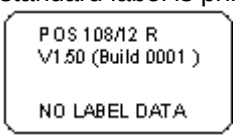
Label confirmation
On

Label confirmation:
On: A new print order is only printed after confirmation at the device. An already active continuing print order is printed as long as the confirmation is effected at the device.
Off: No query appears at the display of control unit.

Press key ◢ to arrive at the next menu item.

Standard label
Off

Standard label:
On: If a print order is started without previous definition of label, the standard label is printed.

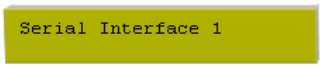


Off: If a print order is started without previous definition of label, an error message appears in the display.

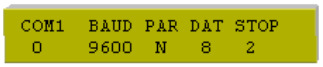
8.6 Serial interface 1

Press key F to access the function menu.

Press key ▬◣ as long as you arrive at the 'Serial Interface 1' menu.



Press key ● to select the menu.

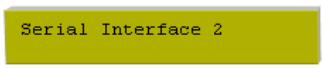


COM1:
0 - serial interface Off.
1 - serial interface On.
2 - serial Interface On, no error message occurs in case of a transmission error.
Baud rate:
Indication of bits which are transferred per second.
Following values are possible: 1200, 2400, 4800, 9600, 19200, 38400 and 57600.
Par = Parity:
N - No parity; E - Even; O - Odd
Please observe that the settings correspond to those of the printer.
Dat = Data bits:
Setting of data bits. Value range: 7 or 8 Bits.
Stop = Stop bits:
Indication of stop bits between bytes. Value range: 1 or 2 stop bits.

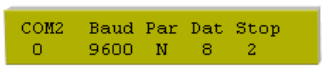
8.7 Serial interface 2

Press key F to access the function menu.

Press key ▬◣ as long as you arrive at the 'Serial Interface 2' menu.



Press key ● to select the menu.

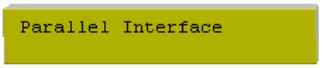


COM1:
0 - serial interface Off.
1 - serial interface On.
2 - serial Interface On, no error message occurs in case of a transmission error.
Baud rate:
Indication of bits which are transferred per second.
Following values are possible: 1200, 2400, 4800, 9600, 19200, 38400 and 57600.
Par = Parity:
N - No parity; E - Even; O - Odd
Please observe that the settings correspond to those of the printer.
Dat = Data bits:
Setting of data bits. Value range: 7 or 8 Bits.
Stop = Stop bits:
Indication of stop bits between bytes. Value range: 1 or 2 stop bits.

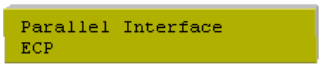
8.8 Parallele interface

Press key F to access the function menu.

Press key ▙ as long as you arrive at the 'Parallel Interface' menu.



Press key ● to select the menu.

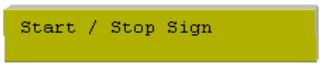


Parallel port:
SPP - Standard Parallel Port
ECP - Extended Capabilities Port (grants a fast data transmission but it is only to set at PCs of newer version).
Please observe that the settings correspond to those of the PC.

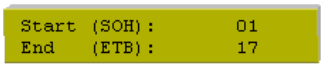
8.9 Start/stop sign

Press key F to access the function menu.

Press key ▙ as long as you arrive at the 'Start/Stop Sign' menu.



Press key ● to select the menu.

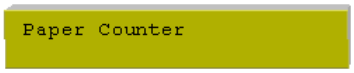


SOH: Start of data transfer block → Hex format 01
ETB: End of data transfer block → Hex formal 17
Two different start / en signs can be set. The settings are normally SOH = 01 HEX and ETB = 17 HEX. Several host computers cannot process these signs and therefore SOH = 5E HEX and ETB = 5F cannot be set.

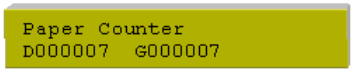
8.10 Paper counter

Press key F to access the function menu.

Press key ▙ as long as you arrive at the 'Paper Counter' menu.



Press key ● to select the menu.

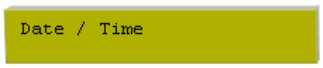


Paper counter:
D: Indication of printhead attainment in meters.
G: Indication of printer attainment in meters.

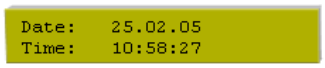
8.11 Date & time

Press key F to access the function menu.

Press key ▁◣ as long as you arrive at the 'Date/Time' menu.



Press key ● to select the menu.

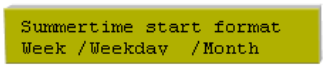


Set date and time:
The upper line of display shows the current date, the second line the current time. With keys ◀ and ▶ you can change to the next or previous field. With keys ▲ and ▼ you can increase and/or decrease the displayed values.

Press key ▁◣ to arrive at the next menu item.

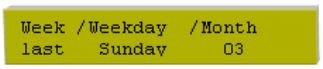
Summertime:
On: Printer automatically adjust clock for daylight saving changes.
Off: Summertime is not automatically recognized and adjusted.

Press key ▁◣ to arrive at the next menu item.



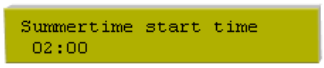
Start of summertime (format):
Select the format in which you want to define beginning summertime. The above example indicates the default setting (European format). DD = day; WW = week; WD = weekday; MM = month; YY = year; next day = only next day is taken into consideration

Press key ▁◣ to arrive at the next menu item.



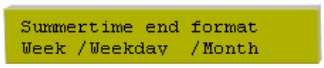
Start of summertime (date):
By means of this function you can enter the date at which summertime has to start. This entry refers to the previously selected format. Example: summertime is automatically adjusted at last Sunday in March (03).

Press key ▁◣ to arrive at the next menu item.



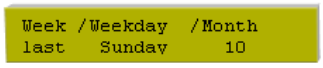
Start of summertime (time):
By means of this function you can define the time when you want to start summertime.

Press key ▁◣ to arrive at the next menu item.



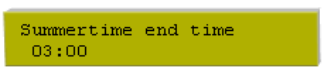
End of summertime (format):
Select the format in which you want to define end of summertime. The above example indicates the default setting (European format). DD = day; WW = week; WD = weekday; MM = month; YY = year; next day = only next day is taken into consideration

Press key ▁◣ to arrive at the next menu item.



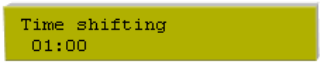
End of summertime (date):
By means of this function you can define the date when you want to stop summertime. The entry refers to the previously selected format. Example: summertime is automatically adjusted at last Sunday in October (10).

Press key ▁◣ to arrive at the next menu item.



End of summertime (time):
By means of this function you can define the time when you want to stop summertime.

Press key ▁◣ to arrive at the next menu item.

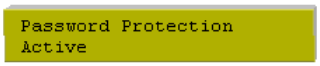


Time shifting:
By means of this function you can enter time shifting in hours and minutes (for automatically adjustment from summer and wintertime). This entry refers to the currently set printer time.

8.12 Password protection

Press key F to access the function menu.

Press key ▲ as long as you arrive at the 'Password Protection' menu.



Press key ● to select the menu.

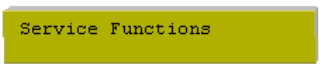
Password:
By a password several functions can be blocked, so the user cannot work with them. There are several applications in which the use of password protection makes sense (see chapter 12.2 Password, on page 108).

8.13 Service functions

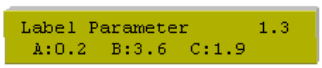
So that the distributor res. the printer manufacturer at the case of service can offer fast support, the printer is equipped with the Service functions menu.
Necessary information such as set parameter can read directly at the printer (see chapter 8.15 on page 71).

Press key F to access the function menu.

Press key ▲ as long as you arrive at the 'Service Functions' menu.

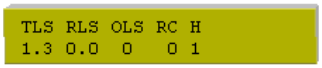


Press key ● to select the menu.



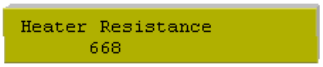
Label parameters:
Indication of label parameters in Volt.
A: Indication of minimum value.
B: Indication of difference between minimum and maximum value.
C: Indication of trigger level. The value is ascertained while measuring and can be changed.

Press key ▲ to arrive at the next menu item.



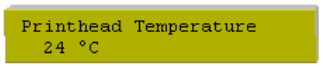
Photocell paramters:
DLS: Indication of transmission photocell level in Volt.
RLS: Indication of reflexion photocell level in Volt.
OLS: Indication of ribbon savings photocell level in Volt.
TR: Indication of transfer ribbon photocell status (either 0 or 1).
H: Indication of printhead position.
0 = printhead down; 1 = printhead up

Press key ▲ to arrive at the next menu item.



Heater resistance:
To achieve a high print quality, the indicated Ohm value must be set after an exchange of printhead.

Press key ◢ to arrive at the next menu item.

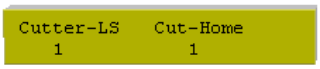


Printhead temperature:
Indication of printhead temperature. The printhead temperature corresponds normally to the room temperature. In case the maximum printhead temperature is exceeded, the current print order is interrupted and an error message appears at the printer display.

Press key ◢ to arrive at the next menu item.

Motor Ramp:
This function is often used for high printing speed as the tearing of transfer ribbon can be prevented.
The higher the '++' value is set, the slower the feeding motor is accelerated.
The smaller the '--' value is set, the faster the feeding motor is decelerated.

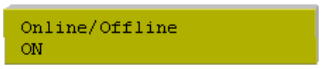
Press key ◢ to arrive at the next menu item.



Cutter photocell:
1 - Printer is equipped with a cutter
0 - Printer is not equipped with a cutter

CH:
1 - The cutter is in the initial position and ready for the cutting procedure.
0 - The cutter is not in the initial position. Before you are going to release a cutting procedure you first have to place the cutter in its initial position.

Press key ◢ to arrive at the next menu item.

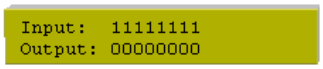


Online/Offline:
This function is activated e.g. if the transfer ribbon is to be changed. It is avoided that a print order is processed although the printer is not ready. If the function is activated then press the key ● to change between Online and Offline mode. The respective state is indicated in the display.
Standard: Off

Online: Data can be received by interface. The keys of the foil keyboard are only active, if you changed in the Offline mode with key ●.

Offline: The keys of the foil keyboard are still active but received data are not processed. If the printer is again in Online mode then new print orders can be again received.

Press key ◢ to arrive at the next menu item.



Input/Output:
Indication of signal level which indicates the signal a print order is started.
0 – Low
1 – High

Press key ◢ to arrive at the next menu item.

```
I/O IN signal level
1s2x3+4x5x6x7x8x
```

IN signal level:
Indication of signal at which a print order is started.

+ = active signal level is 'high' (1)
− = active signal level is 'low' (0)
x = not activated signal level
s = status can be affected by interface*

The modification of the signal level is only taken into consideration for the operating modes I/O static, I/O dynamic, I/O static continuous and I/O dynamic continuous.

Press key ◢ to arrive at the next menu item.

```
I/O OUT signal level
1+2+3+4+5+6+7+8+
```

OUT signal level:
Indication of signal level for output signal.

+ = active signal level is 'high' (1)
− = active signal level is 'low' (0)
s = status can be affected by interface*

Press key ◢ to arrive at the next menu item.

```
TR Advance Warning
On   Ø:40   v:100
```

TRB = Transfer ribbon advance warning:
Before the end of transfer ribbon, a signal is send by the control output.

Warning diameter:
Setting of transfer ribbon advance warning diameter.

In case you enter a value in mm then a signal appears via control output when reaching this diameter (measured at transfer ribbon roll).

v = Reduced print speed:
Setting of the reduced print speed. This can be set in the limits of the normal print speed. Additionally there are the following settings:
−: No reduced print speed
0: Printer stops at reaching the warning diameter and indicates 'ribbon error'.

Press key ◢ to arrive at the next menu item.

```
Port Test OFF
```

Port test:
Examination of photocell.
To start the port test, press key ▲ and then the received data is printed.

COM1 =	serial interface
LPT =	parallel interface
USB =	Universal Serial Bus interface
TCP/IP =	Ethernet interface

Press key ◢ to arrive at the next menu item.

```
Hotstart
OFF
```

Hotstart:
On: Continue an interrupted print order after switching on the printer anew.
(Only if printer is equipped with option memory card)
Off: After switching off the printer the complete data is lost
(see chapter 12.3 Hotstart, on page 110).

* in combination with Netstar PLUS

Press key ◢ to arrive at the next menu item.

```
Autoload
On
```

Autoload:
On: A label which was loaded once from memory card can be loaded again automatically after a restart of printer.
Procedure: The used label is saved onto memory card. The label is loaded from memory card and printed. After switching the printer Off and again On, the label is loaded from memory card automatically and can be printed again.

The last loaded label from memory card is always again loaded after a restart of printer.

Off: After a restart of printer the last used label must be again loaded manually from memory card.

A common use of the functions Autoload and Hotstart is not possible. For a correct Autoload procedure the Hotstart must be deactivated in the printer.

Press key ◢ to arrive at the next menu item.

```
Invert label
OFF
```

Invert label:
On: Label is printed inverse.
Off: Function is deactivated.

Press key ◢ to arrive at the next menu item.

```
Manual reprint
Yes
```

Manual reprint:
Yes: I In case an error occurred and printer is in stopped mode then you can reprint the last printed labels by means of keys ▲ and ▼.
No: Only blank labels were advanced.

Press key ◢ to arrive at the next menu item.

```
Zero point adjustment
0.80
```

Zero point adjustment:
Indication of value in 1/100 mm.

After replacing the printhead - the print cannot be continued at the same position on the label, the difference can be corrected.

The value for zero point adjustment is set ex works. After replacing the printhead, only service personnel are allowed to set this value anew.

Press key ◢ to arrive at the next menu item.

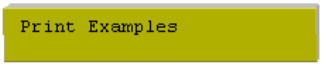
```
Automatic return
On
```

Automatic return:
On: The label is pulled back immediately after the cut.
Off: The label is pulled back only before the next print.

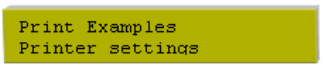
8.14 Print examples

Press key F to access the function menu.

Press key ◣ as long as you arrive at the 'Print Examples' menu.



Press key ● to select the menu.

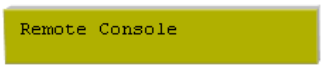


Print examples:
Settings: Printout of all printer settings such as speed, label and transfer ribbon material.
Bar codes: Printout of all available bar code types.
Fonts: Printout of all available font types.

8.15 Remote console

Press key F to access the function menu.

Press key ◣ as long as you arrive at the 'Remote Console' menu.



Press key ● to select the menu

For more information, please contact our sales department.

8.16 Emulation

Press key F to access the function menu.

Press key ▙ as long as you arrive at the 'Emulation' menu.

```
Emulation
```

Press key ● to select the menu.

```
Protocol
ZPL
```

Protocol:
CVPL: Carl Valentin Programming Language
ZPL: Zebra® Programming Language
Change between CVPL protocol and ZPL II® protocol.

Press key ● to confirm the selection.

The printer performs a restart and ZPL II® commands are transformed into CVPL commands internally by the printer and then executed by the printer.

Press key ▙ in menu protocol to arrive at the next menu item.

```
Printhead resolution
  11.8 (Dot/mm)
```

Printhead resolution:
At activated ZPL II® emulation the printhead resolution of the emulated printer must be set, e.g. 11.8 Dot/mm (= 300 dpi).

If the printhead resolution of the Zebra® printer differs from that of the Valentin printer, then the size of objects (e.g. texts, graphics) complies not exactly.

Press key ▙ to arrive at the next menu item.

```
Drive mapping
B:->A: R:->R:
```

Drive mapping:
The access to Zebra® drives
B: Memory Card
R: RAM Disk (standard drive, if not indicated)

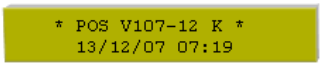
is rerouted to the corresponding Valentin drives
A: Memory Card (slot 1) and/or Compact Flash
B: Memory Card (slot 2)
R: RAM Disk

This can be necessary if the available space on the RAM disk (at present. 512 KByte) is not sufficient or if bitmap fonts are downloaded to the printer and be stored permanently.

As the printer build-in fonts in Zebra® printers are not available in Valentin printers, this can cause small differences in the text image.

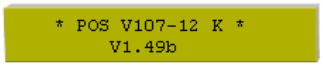
8.17 Main menu

After switching on the printer, the display shows the following:



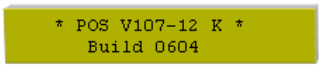
The first line of main menu indicates used printer type.
The second line indicates current date and time.

Press key ● for display the following:



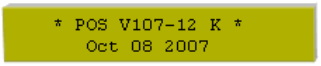
The second line of display indicates version number of firmware.
After a short time the indication of display returns automatically to main menu.

Press key ● for display the following:



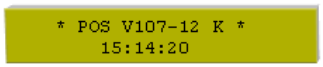
Indication of software Build version.

Press key ● once more for display the following:



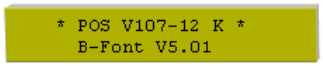
Indication of firmware creation date.

Press key ● once more for display the following:



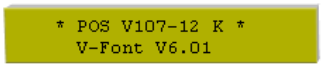
Indication of firmware creation time.

Press key ● once more for display the following:



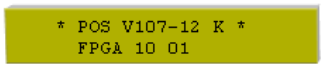
Indication of font version of bitmap fonts.

Press key ● once more for display the following:



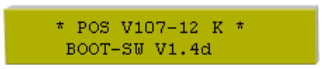
Indication of font version of vector fonts.

Press key ● once more for display the following:



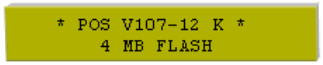
Indication of version number of FPGA

Press key ● once more for display the following:



Indication of boot software version number.

Press key ● once more for display the following:



Indication of memory space of FLASH in MB.

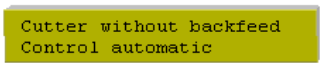
9 Options

9.1 Cutter

The menu item cutter is only displayed if the printer recognizes the option via cutter photocell when switching on the printer.

Press key F to access the function menu.

In menu 'Print Mode', press key ▁◣ as long as you arrive at the 'Cutter' menu.



Press key ● to select the menu.

In the first line of the display the cutter mode can be selected.

In the second line the cutter offset which is approx. 20 mm can be set.
Press key ▲ to change to the next operating mode.

Operating modes

Off:
The print order is processed without cutting.

Without backfeed:
A cut is effected after each label.
We recommend using this operating mode if no data which is to print is in the upper part of the label.

With backfeed:
A cut is effected after each label.

Interval with final cut
A cut is effected after a fixed number of labels which you have to enter at the print start and additionally at the end of the print order.

Interval without final cut:
A cut is effected after a fixed number of labels which you have to enter at the print start. At the end of the printer order no cut is effected except when the set interval comes to the end of the print order.

Final cut:
A cut is only effected at the end of the print order.

Single cut:
In case you are in the main menu or a print order has been stopped you can release a single cut by pressing key ▶.
The type of the single cut depends on the set cutter mode, offset and the value set for the double cut.

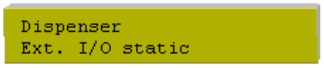
Press key F res. ● to return to the main menu.

9.2 Dispenser

In order to operate the printer in dispensing mode a print order has to be started and the printer has to be in 'waiting' mode.

Press key F to access the function menu.

In menu 'Print Mode', press key ▬◣ as long as you arrive at the 'Dispenser' menu.



Press key ● to select the menu.

In the first line of the display the dispenser mode can be selected.
In the second line the dispenser offset which is approx. 18 mm can be set.

Press key ▲ to arrive at the next operating mode.

Operating modes

Off:
It is printed without the labels are dispensed.

I/O static:
The input signal evaluated, i.e. it is printed as long as the signal exists. The number of labels which was entered at the print start is printed.
The set dispenser offset is not taken into consideration.

I/O static continuous:
You can find the description of this operating mode in chapter I/O static.
Continuous means that it is printed as long as new data is transferred via interface
The set dispenser offset is not taken into consideration.

I/O dynamic:
The external signal is evaluated dynamically, i.e. is the printer in 'waiting' mode a single label is printed at each signal changing. After the print the set dispenser offset is executed, i.e. a backfeed is effected.

I/O dynamic continuous:
You can find the description of this operating mode in chapter I/O dynamic.
Continuous means that it is printed as long as new data is transferred via interface.

Photocell:
The printer is controlled via photocell. The printer prints automatically a label if the user takes away the label at the dispensing ledge. The print order is finished when the target number of labels is reached.

Photocell continuous:
You can find the description of this operating mode in chapter photocell.
Continuous means that it is printed as long as new data is transferred via interface.

Press key F res. ● to return to the main menu.

9.3 Network

Press key F to access the function menu.

Press key ▟ as long as you arrive at the 'Network' menu.

This menu item can only be selected if a network card is recognised at switching on the printer, otherwise a message appears that the option is not available.
For more information, please see the separate manual.

9.4 RFID

Press key F to access the function menu.

Press key ▶ as long as you arrive at the 'RFID' menu.

RFID

Press key ● to select the menu.

Programming
On

Press key ▲ and ▼ to set the operating mode of RFID hardware.
In order to program a RFID tag the setting must be On.

Searching...
RFID COM2 38400

Press key ● in On mode to activate the hardware. The setting remains also when switching the printer Off.

RFID

After a successful activation the availability of RFID module is indicated. The menu is not available if no RFID hardware was recognised.

Press key ● to access the RFID menu.

RFID Module type
UHF 869 Mhz

Indication of RFID module type, frequency range (HF, UHF) and used frequency.

Press key ▶ to arrive at the next menu item.

Tag information
Read tag number

The menu item Tag information contains several sub-functions.

Press key ● to indicate the tag number.

Tag information
3100DA7557D32C3

Indication of tag identification number (TID) or 'no RFID tag' if no tag was recognised.
For UHF Class 1 Gen2 tags the EPC is indicated.

Press key ● to return to the menu item Tag information.

Press key ▶ to arrive at the next sub-function and then press key ● to select the function.

Tag information
0x0 .. 0x7 2/bl

Indication of tag storage allocation.
This information can be used to assure that the tag was programmed correctly.

Press key ● to return to the menu item Tag information.

Press key ▶ to arrive at the next sub-function and then press key ● to select the function.

Tag information
ISO18000-6C (EPS Class I)

Indication of tag type.
Press keys ◀ and ▶ to use the scroll function in order to shift the complete information into the display.

Press key ● to return to the menu item Tag information.

Press key ▶ to arrive at the next sub-function and then press key ● to select the function.

```
Tag information
Adjust antenna
```

Start measuring function.
In order to evaluate the quality factor of RFID radio link the measuring function is started. With set tag offset the label is positioned accordingly.

Press key ● to return to the menu item Tag information.

Press key ▶ to arrive at the next sub-function and then press key ● to select the function.

```
Adjust antenna
100.    19   0
```

Adjust antenna.
First value: Indication of successful reading attempts for current tag.
Second value: Number of reading attempts.
Third value: Number of failed reading attempts.
Press keys ▲ and ▼ to position the label in mm steps. The set antenna offset is corrected correspondingly.

Press key ● to return to the menu item Tag information.

Press key ▶ to arrive at the next sub-function and then press key ● to select the function.

```
Tag information
Start tag recognition
```

The automatic tag recognition is started.

The printer tries to recognise the inserted tag.

```
Vernier calibration
8%  please wait
```

The status of tag recognition is indicated in percent.

```
Tag calibrated
Offset saved
```

After the tag recognition is finished the customized information is to be confirmed with key ● to return to the previous menu.

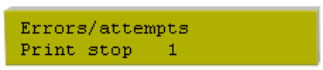
Press key ◢ to arrive at the next menu item.

```
COM2 Baud  Par Dat Stop
 2   38400  N   8   1
```

Indication of interface settings.

The settings should not be changed because the ideal setting is effected automatically.

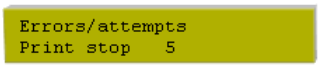
Press key ◢ to arrive at the next menu item.



Settings for error handling.

Press key ▲ and ▼ to change between the different error reactions.

Print stop:
The printer stops after each RFID error (tag could not be programmed).
Marking:
In case of an error the label is marked with sample.

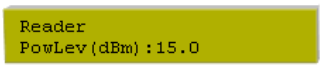


Ignore:
Errors caused by unsuccessful tag programming are 'ignored'. The label is printed. However, the error is logged in the RFID statistics.

Press key ◀ and ▶ to change between the settings error or number of attempts.

Press key ▲ and ▼ to specify the number of attempts, how often the RFID unit tries to write on the tag before an error is released or before the print order is cancelled.

Press key ◢ to arrive at the next menu item.



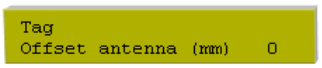
Setting the sending power of the RFID write/read unit.

Press key ▲ and ▼ to change the value.

The adjustment of this value requires more special knowledge of the used hardware. The indicated value does not have to be changed normally because it affects the function of the write/read module. Changing can lead to the fact that RFID tags cannot be programmed any longer.

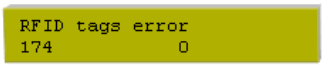
Press key 💾 to save the current settings permanently.

Press key ◢ to arrive at the next menu item.



Indication of the antenna position inside the used label.

Press key ◢ to arrive at the next menu item.



Statistics indication of the previously programmed tags as well as the number of faulty tags.

Press key 💾 to reset the counter.

9.5 Scanner

Press key F to access the function menu.

Press key ▂ as long as you arrive at the 'Scanner' menu.

```
Scanner
```

Press key ● to select the menu.

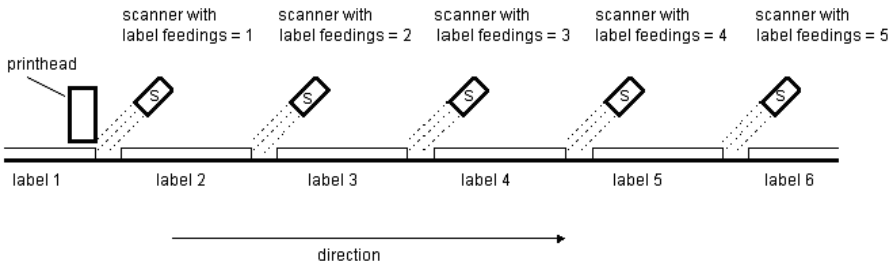
```
Scanner Mode
Mode:0  NoRd:1  FLab:1
```

Mode:

0 Off
1 Mode 1 (data comparison)
i.e. bar code date which was read by the scanner is compared with the printed data.
2 Mode 2 (check readability)
i.e. it is only checked if the scanner can read the printed bar codes.

NoRd = Non readables:
Indication of number of successive non readables, i.e. when the printer indicates an error message.
Value range: 0 - 9
1 = the printer stops at the first label which cannot be red from the scanner and shows an error message.
0 = the printer do not stop at non-readable. A message appears at the display only.

VEtik = Label feeding:
In many cases it is impossible to position the scanner directly at the printhead, and therefore with this setting a feeding can be set
Value range: 1 - 5
The illustration below clarifies the meaning of this parameter.



Press key ▂ to arrive at the next menu item.

```
Scanner Type
```

Scanner type:
Selection of the connected scanner type.
For more information about the different scanner models, please contact our sales department.

Press key ▂ to arrive at the next menu item.

```
Scanner Setup
Start
```

Scanner setup:
Positioning of scanner. First of all, the scanner must be connected, the appropriate scanner must be selected in the scanner type menu, the interface must be activated in the interface parameter menu and the interface parameters must be set correctly.

Press key ▂ to arrive at the next menu item.

```
Scan Offset(mm)
   0.2
```

Scan offset:
Indication of value at which the label is moved so the scanner can read data onto the label.

Press key ◣ to arrive at the next menu item.

```
Scan Length(mm)
     0.0 Auto
```

Scan length:
If this parameter is set to 0 (AUTO), the switch on and off position of scanner is calculated by means of position and height of bar code onto the label.
If the parameter Scan Length is not 0, so this defines the length of scan sector. The start of scan sector is then set by the parameter Scan Offset. The following drawing shows the meaning of parameter.

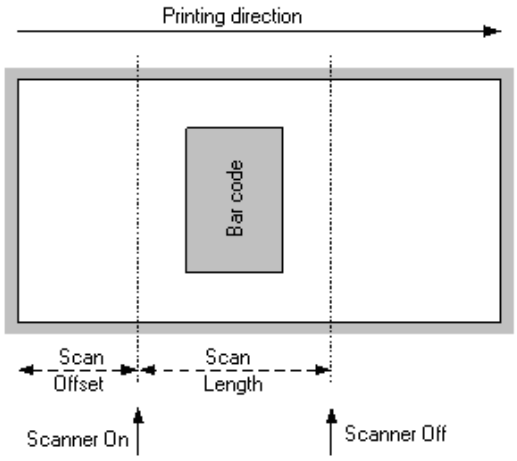


Figure 9

Press key ◣ to arrive at the next menu item.

```
Scan Mode
while print
```

Scan mode:
With this parameter can be adjusted, at which time the scanning of the bar code is to be effected - during printing or after printing.

Press key ◣ to arrive at the next menu item.

```
Scan Delay
(ms)      0
```

Scan delay:
In scan mode 'after print' the scanner is switched On after the label was printed. With this value the time can be specified between printing the label and switching On the scanner.

Press key ◣ to arrive at the next menu item.

```
Scan Timeout
(ms)      0
```

Scan timeout:
In scan mode 'after print' can be specified with this value the time which is available for scanning the label.

Press key ◣ to arrive at the next menu item.

```
COM2  Baud Par Dat Stop
 1    9600  N   8   2
```

Interface:
In order to use a scanner, the COM interface must be set to 1.

For more information, please see the separate manual.

9.6 Memory Card

This label printer is equipped at the rear with two memory card slots. By means of this memory card you can permanently save via interface graphics, text, label data or information from database.

Insertion and removal of memory card

Insert memory card with contact side forwards to the slot that was planned for it. Take care that the memory card engaged and the marking is on the left side (see illustration).
To take the memory card out of device A you have to press the upper ejector knob, to take out the card of device B press the lower one.

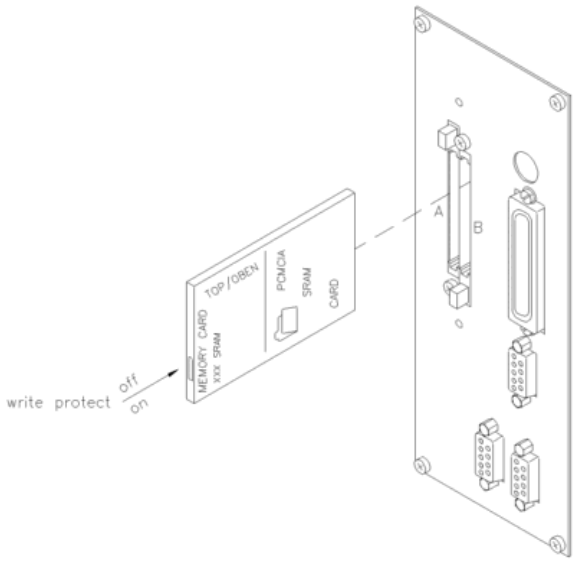
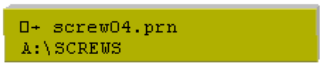


Figure 10

File and/or directory name

The printer handles your memory card as a DOS compatible file system.

After formatting the memory card the STANDARD directory is automatically available. After switching on the printer or inserting the memory card, this directory is the current one. The directories are displayed with capital letters and the '<' sign. The indication of single files is effected in small letters.



The first line of the display shows the directory in capital letters res. the selected file, the second line shows the currently selected device with the corresponding path indication.

Key assignment

Press key to indicate the saved labels onto the memory card.

Press key F to enter the memory card menu.

Press key to arrive at the next menu item.

Press key F to return to the previous menu item.

Press key to select a menu and/or to confirm a query.

Press key F to change between drive A and B inside a selected function.

Press key ◀ and ▶ to browse the contents of the current directory.

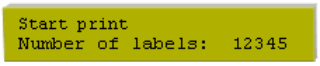
Press key ▲ and ▼ to change to the indicated directory.

Selecting label

Keys:

Press key ◀ and ▶ to select the desired label in STANDARD directory.

Press key to select the label.



Select the number of labels which you want to print

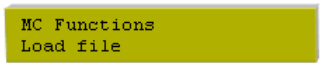
Press key to start the print order.

After finishing the print order the display shows again the main menu.

It is NOT possible to change the directory. Enter the menu 'Change dir' to change the directory.

Loading file from memory card

Keys: 💾, F



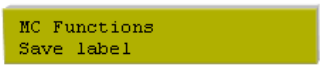
Press key ● to select the 'Load file' menu item.

Select the file you want to load and confirm the selection with key ●.

The loaded label is now in the printer internal storage and after the loading procedure the display shows the main menu.

Saving label onto memory card

Keys: 💾, F, ◢



Press key ● to select the 'Save label' menu item.

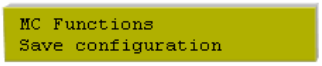
Select the directory and/or label you want to save and confirm the selection with key ●.

Confirm the query with ● and the label will be saved.

After the saving procedure the display shows again the main menu.

Saving the configuration

Keys: 💾, F, ◢, ◢



Press key ● to select the 'Save configuration' menu item.

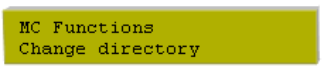
As standard, the proposed file name is config.cfg. This name can be changed by the user. In this file the printer parameters are saved which are not saved permanent in the internal Flash.

Press key ● to start the saving procedure.

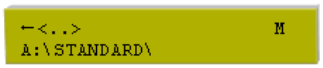
After the saving procedure, the display shows again the main menu.

Changing directory/drive

Keys: 💾, F, ◢, ◢, ◢



Press key ● to select the 'Change directory' menu item.



The lower line of display shows the directory which is selected at the moment.

Press key ▲ and ▼ to change the directory in the upper line.

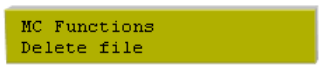
Press key ◀ and ▶ to show all available directories.

Press key ● to confirm the selected directory.

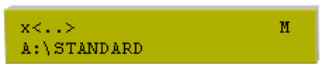
After changing the directory the display shows again the main menu.

Deleting file from memory card

Keys: 💾, F, ◢, ◢, ◢, ◢



Press key ● to select the 'Delete file' menu item.



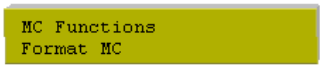
Select directory and/or label you want to delete and confirm the selection with key ●.

The selected label is deleted from the memory card.

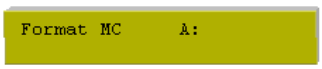
After the deleting procedure the display shows again the first menu item 'Load file'.

Formatting memory card

Keys: 💾, F, ◢, ◢, ◢, ◢, ◢



Press key ● to select the 'Format' menu item.



Press key ● to confirm the selection and the procedure is started.

When formatting the memory card the STANDARD directory is automatically created.

After the formatting procedure the display shows again the 'Load file' menu item.

Copying memory card

Keys: 💾, F, ◢, ◢, ◢, ◢, ◢, ◢

```
MC Functions
Copy MC
```

Press key ● to select the 'Copy' menu item.

Press key ◢ to select the copy function.
Drive A to A, A to B, B to A or B to B.

```
Copy MC   A:->B:
Insert source+destination
```

Insert source and destination card and press key ● to confirm the selection. The content of the source card is transferred to the destination card.

When copying from A to A and B to B, please observe that the memory cards have the same storage capacity.

When copying from A to A res. B to B first of all the query regarding the destination card appears on the display.

Insert card and confirm the query. If the content of the card is loaded into the printer-internal memory, a prompt appears to insert the destination card.

Depending on the storage capacity of memory card, this procedure is to be repeated.

After the copying procedure the display shows again the 'Load file' menu item.

Indication of free memory space

Keys: 💾, F, ◢, ◢, ◢, ◢, ◢, ◢, ◢

```
MC Functions
Free memory
```

Press key ● to select the 'Free memory' menu item.

```
Free memory
A: 253920 KB
```

The still available memory space onto memory card is indicated.

Press key III to display again the 'Load file' menu item.

10 Maintenance and cleaning

DANGER!

Risk of death by electric shock!

⇒ Disconnect the label printer from power supply before performing any maintenance work.

Maintenance schedule

Maintenance task	Frequency
General cleaning (see section 10.1, on page 90).	As necessary.
Cleaning print roller (see section 10.2, on page 90).	Each time the label roll is changed or when the printout and label transport are adversely affected.
Cleaning printhead (see section 10.3, on page 91).	**Direct thermal printing:** Each time the label roll is changed. **Thermal transfer printing:** Each time the transfer ribbon is changed or when the printout is adversely affected.
Cleaning label photocell (see section 10.4, on page 92).	When exchanging the label roll.
Replacing printhead (see section 10.5, on page 93).	When errors in the printout occur.

WARNING!

Risk of fire by easily inflammable label soluble!

⇒ When using label soluble, dust must be completely removed from the label printer and cleaned.

10.1 General cleaning

CAUTION!

Abrasive cleaning agents can damage the label printer!

⇒ Do not use abrasives or solvents to clean the outer surface of the label printer.

⇒ Remove dust and paper fuzz in the printing area with a soft brush or vacuum cleaner.

⇒ Clean outer surfaces with an all-purpose cleaner.

10.2 Cleaning the printer roller

A soiled print roll can lead to reduced print quality and can affect transport of material.

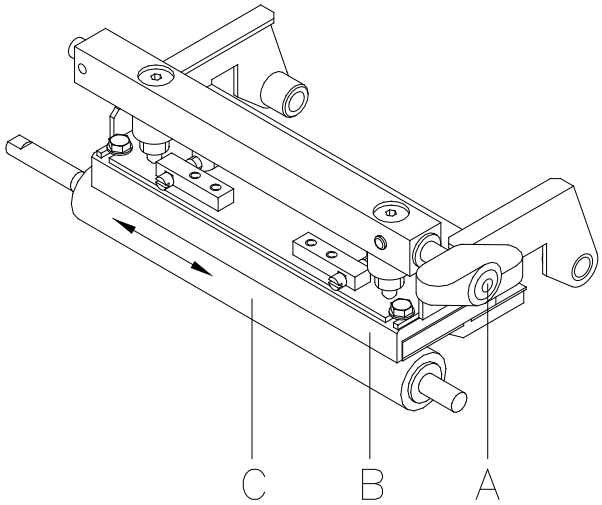


Figure 11

1. Open printer cover.
2. Turn lever (A) counter clockwise to lift up the printhead (B).
3. Remove labels and transfer ribbon form the label printer.
4. Remove deposits with roller cleaner and a soft cloth.
5. Turn the roller (C) manually step by step to clean the complete roller (only possible when printer is switched off, as otherwise the step motor is full of power and the roller is kept in its position).

10.3 Cleaning the printhead

Printing can cause accumulation of dirt at printhead e.g. by colour particles of transfer ribbon, and therefore it is necessary to clean the printhead in regular periods depending on operating hours, environmental effects such as dust etc.

CAUTION!

Printhead can be damaged!

⇒ Do not use sharp or hard objects to clean the printhead.

⇒ Do not touch protective glass layer of the printhead.

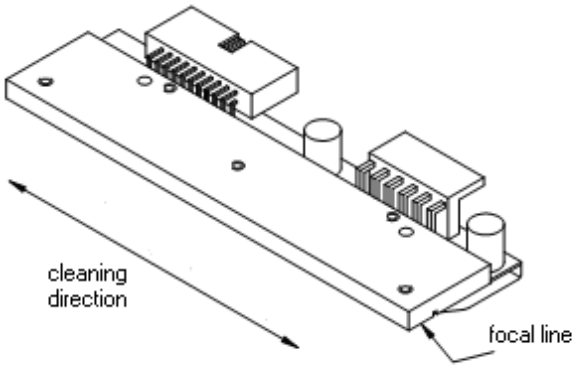


Figure 12

1. Open printer cover.
2. Turn lever (A, in Figure 11) counter clockwise to lift up the printhead.
3. Remove labels and transfer ribbon from the label printer.
4. Clean printhead surface with special cleaning pen or a cotton swab dipped in pure alcohol.
5. Allow printhead to dry for 2-3 minutes before commissioning the printer.

10.4 Cleaning the label photocell

CAUTION!

Label photocell can be damaged!

⇒ Do not use sharp or hard objects or solvents to clean the label photocell.

The label photocell can become dirtied with paper dust and this can adversely affect label detection.

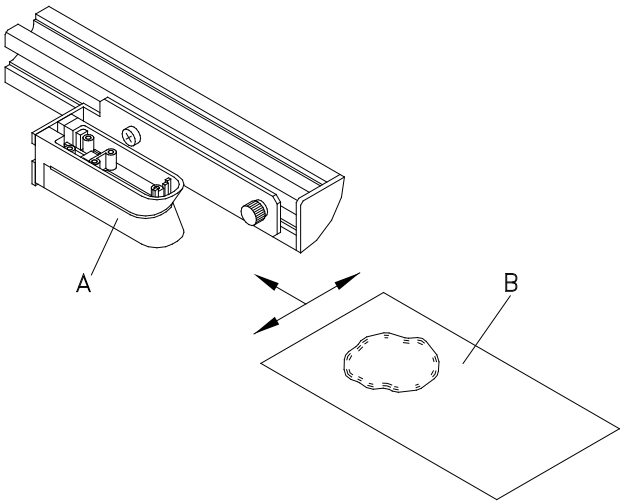


Figure 13

1. Open printer cover.
2. Turn lever (A, in Figure 11) counter clockwise to lift up the printhead.
3. Remove labels and transfer ribbon from the label printer.
4. Blow out the photocell (A) with pressure gas spray. Observe strictly the instructions on the spray can!
5. Clean the label photocell (A) additionally with a cleaning card (B) before soaked in pure alcohol. Move the cleaning card from one side to the other (see illustration).
6. Reload labels and transfer ribbon (see chapter 5 Loading media, on page 25).

10.5 Replacing the printhead (general)

The printhead (4) is preinstalled on a head plate (1) and precisely aligned at the factory.

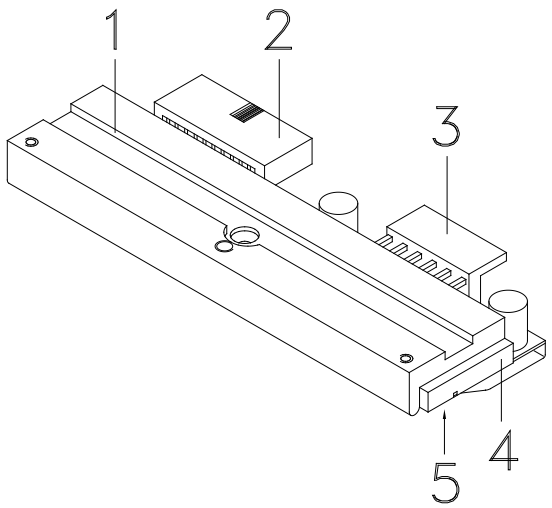


Figure 14

1 Head plate
2 Plug connection signal
3 Plug connection tension
4 Printhead
5 Focal line

CAUTION!

The printhead can be damaged by static electricity discharges and impacts!

⇒ Set up printer on a grounded, conductive surface.

⇒ Ground your body, e.g. by wearing a grounded wristband.

⇒ Do not touch contacts on the plug connections (2, 3).

⇒ Do not touch printing line (5) with hard objects or your hands.

10.6 Replacing printhead

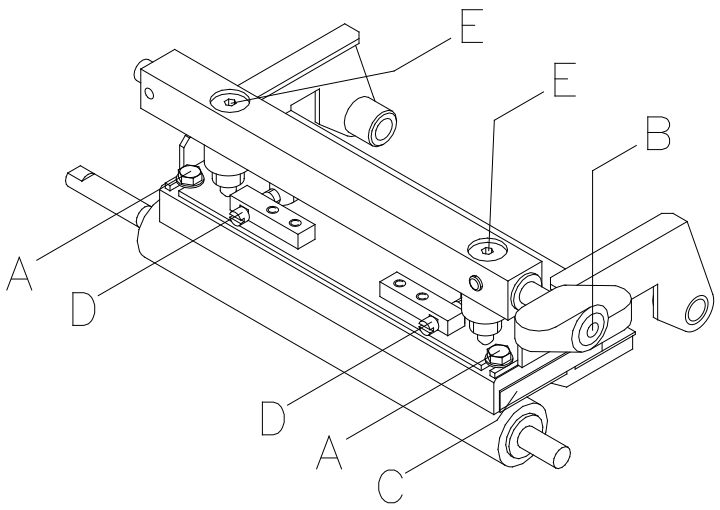


Figure 15

Removing the printhead

1. Remove labels and transfer ribbon from the label printer.
2. When printhead is closed, loosen the screws (A).
3. Turn lever (B) counter clockwise to lift up the printhead.
4. If the printhead (C) is not disengaged on the pressure roller, continue loosen the screws (A).
5. Remove the printhead carefully to the front until you can reach the plug connections.
6. Remove plug connections and then remove printhead (C).

Installing the printhead

1. Attach plug connections.
2. Position printhead in printhead mounting bracket in such a way that the pin is secured in the corresponding hole in the head plate.
3. Lightly keep printhead mounting bracket on the printer roller with one finger and check for correct positioning of the printhead.
4. Tighten again screw (A).
5. Check resistance value on the type plate of printhead and if necessary change the value in the 'Service functions/heater resistance'.
6. Reload labels and transfer ribbon (see chapter 5 Loading media, on page 25).

10.7 Adjusting printhead

Parallelism

An important characteristic for a high quality print is the parallelism of the focal line of the thermal printhead to the pressure roll. Because of the fact that the position of focal line of the printhead depends on fluctuations caused by production, it is necessary to adjust the parallelism.

1. Loosen the screws (A, Figure 15) with a hexagon key by approx. ¼ rotations.
2. Adjust the parallelism with the adjusting screws (D, Figure 15).
   Clockwise = printhead moves forwards
   Counter clockwise = printhead moves backwards
3. Adjust the parallelism as long as the printing result comes up to your full expectation.
4. Tighten again screws (A, Figure 15).
5. Start a print order with approx. 10 labels and control the correct passage of transfer ribbon.

Pressure

Increasing the head contact pressure leads to an improvement of the print image density on the corresponding side and to a shifting of the ribbon feed path in the corresponding direction.

CAUTION!

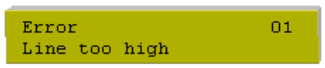
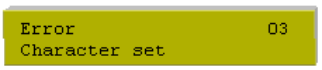
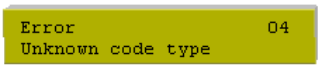
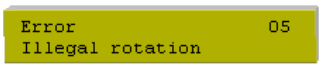
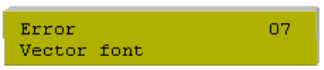
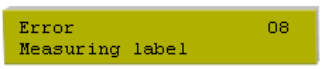
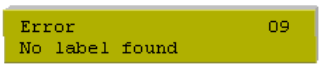
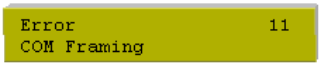
Damage of printhead by unequal use!

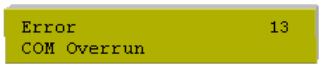
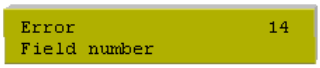
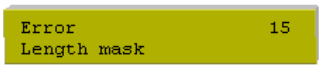
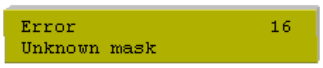
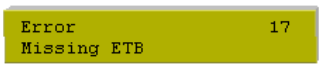
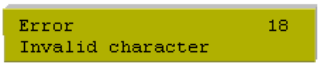
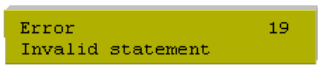
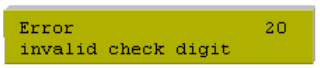
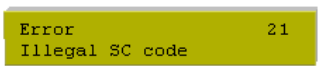
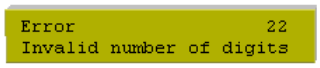
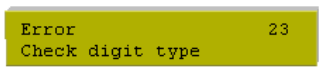
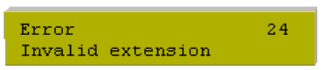
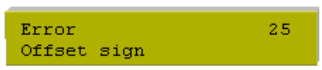
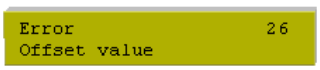
⇒ Change factory settings only in exceptional cases.

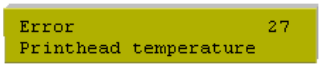
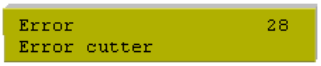
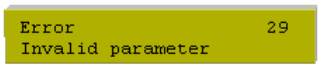
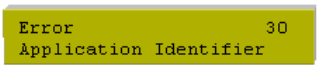
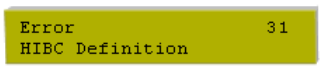
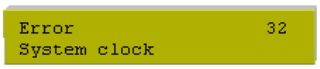
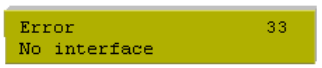
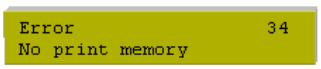
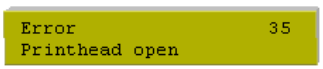
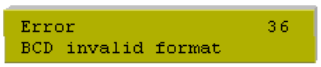
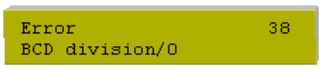
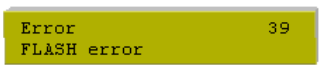
The selection of the smallest value can optimise the life cycle of printhead.

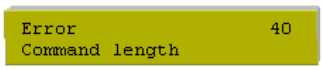
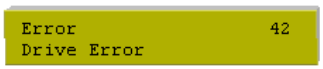
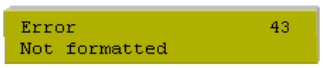
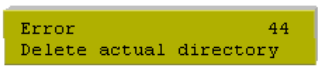
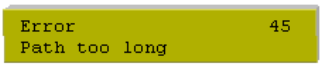
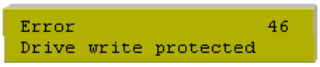
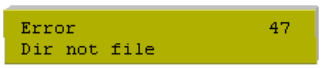
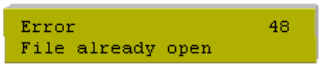
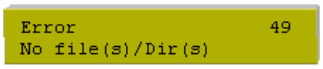
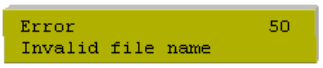
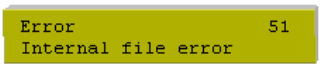
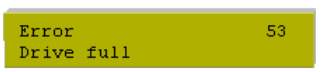
1. Turn pressure screws (E, Figure 15) to change the pressure of printhead.
2. Turning the pressure screws (E, Figure 15) in clockwise direction results in a pressure increase.
3. Turning the pressure screws (E, Figure 15) counter clockwise results in a pressure decrease.

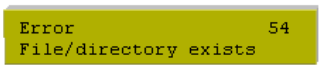
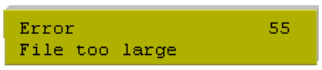
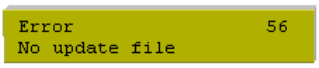
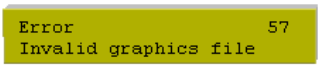
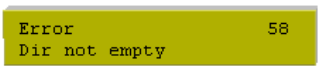
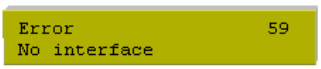
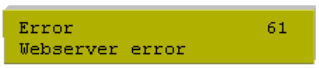
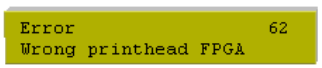
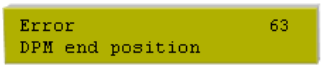
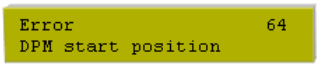
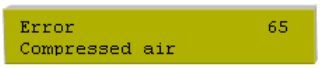
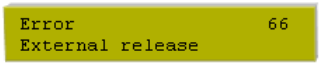
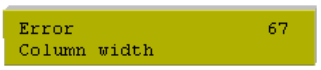
11 Error correction

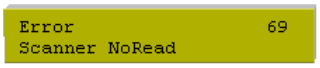
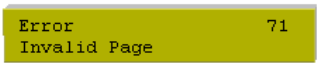
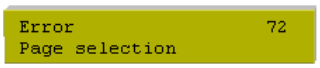
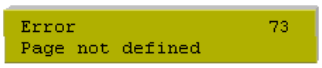
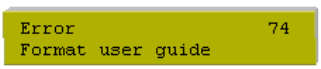
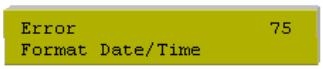
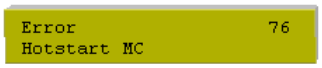
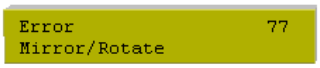
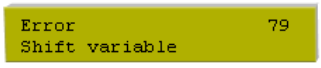
	Line rises up completely or partly over the upper edge of label.	Move line down (increase Y value). Check rotation and font.
	Line rises up completely or partly over the bottom edge of label.	Move line up (reduce Y value). Check rotation and font.
	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
	Selected code is not available.	Check code type.
	Selected position is not available.	Check position.
	Selected font is not available.	Check font.
	Selected font is not available.	Check font.
	While measuring no label was found. Set label length is too large.	Check label length and if labels are inserted correctly. Restart measuring anew.
	No label available. Soiled label photocell. Labels not inserted correctly.	Insert new label roll. Check if labels are inserted correctly. Clean the label photocell.
	During the print order the ribbon roll becomes empty. Defect at the transfer ribbon photocell.	Change transfer ribbon. Check transfer ribbon photocell (service functions).
	Stop bit error.	Check stop bits. Check baud rate. Check cable (printer and PC).
	Parity error.	Check parity. Check baud rate. Check cable (printer and PC).

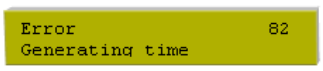
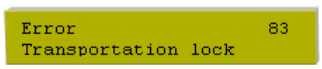
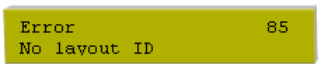
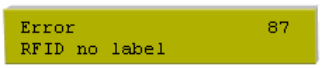
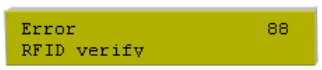
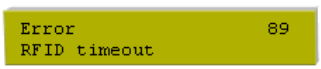
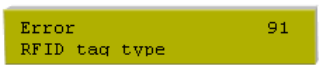
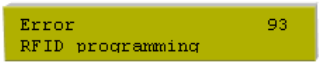
	Loss of data at serial interface (RS-232).	Check baud rate. Check cable (printer and PC).
	Received line number is invalid at RS-232 and Centronics.	Check sent data. Check connection PC - printer.
	Invalid length of received mask statement.	Check sent data. Check connection PC - printer.
	Transferred mask statement is invalid.	Check sent data. Check connection PC - printer.
	No end of data found.	Check sent data. Check connection PC - printer.
	One res. several characters of the text is res. are not available in the selected font.	Change text. Change font.
	Unknown transferred data record.	Check sent data. Check connection PC - printer.
	For check digit control the entered res. received check digit is wrong.	Calculate check digit anew. Check code data.
	Selected SC factor is invalid for EAN res. UPC.	Check SC factor.
	Entered digits for EAN res. UPC are invalid < 12; > 13.	Check number of digits.
	Selected check digit calculation is not available in the bar code.	Check calculation of check digit. Check bar code type.
	Selected zoom factor is not available.	Check zoom factor.
	Entered sign is not available.	Check offset value.
	Entered offset value is invalid.	Check offset value.

	Printhead temperature is too high. Defective printhead sensing device.	Reduce contrast. Change printhead.
	With cut an error occurred. Paper jam.	Check label run. Check cutter run.
	Entered data do not correspond to the characters allowed from the application identifier.	Check code data.
	Selected application identifier is not available in GS1-128 (EAN 128).	Check code data.
	F Missing HIBC system sign. Missing primary code.	Check definition of HIBC code.
	Real Time Clock function is selected but the battery is empty. Defective RTC.	Change battery. Change RTC component.
	Interrupted connection CPU - memory card. Defective memory card interface.	Check connection CPU - memory card interface. Check memory card interface.
	No print memory found.	Check memory assembly on CPU.
	At start of a print order the printhead is open.	Close the printhead and start print order anew.
	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
	BCD error Invalid format for the calculation of Euro variable.	Check entered format.
	Flash component error.	Run a software update. Change CPU.

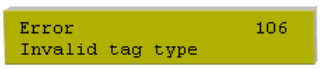
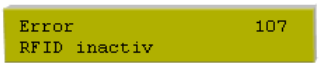
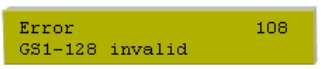
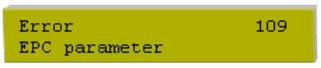
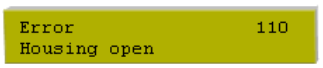
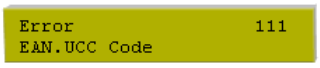
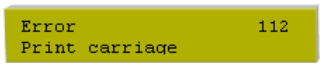
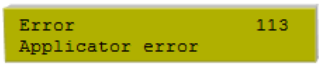
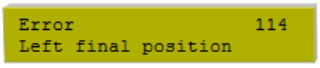
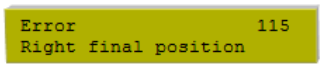
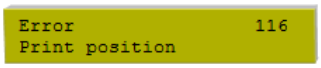
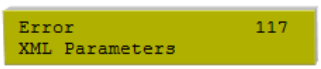
	Invalid length of the received command statement.	Check data sent. Check connection PC - printer.
	Memory card not found / not correctly inserted.	Insert memory card correctly.
	Impossible to read memory card (faulty).	Check memory card, if necessary change it.
	Memory Card not formatted.	Format memory card.
	Attempt to delete the actual directory.	Change directory.
	Too long indication of path.	Indicate a shorter path.
	Memory Card is write-protected.	Deactivate write protection.
	Attempt to indicate a directory as file name.	Correct your entry.
	Attempt to change a file during an access is active.	Select another file.
	File does not exist on memory card.	Check file name.
	File name contains invalid characters.	Correct entry of name, remove special characters.
	Internal file system error.	Please contact your distributor.
	The max. number (64) of main directory entries is reached.	Delete at least one main directory entry and create subdirectories.
	Maximum memory capacity is reached.	Use new Memory Card, delete no longer required files.

	The selected file/directory already exists.	Check name, select a different name.
	During copying procedure not enough memory space onto target drive available.	Use a larger target card.
	Errors in update file of firmware.	Start update file anew.
	The selected file does not contain graphic data.	Check file name.
	Attempt to delete a not empty directory.	Delete all files and sub-directories in the desired directory.
	No memory card drive found.	Check connection of memory card drive. Contact your distributor
	No memory card is inserted.	Insert memory card in the slot.
	Error at start of web server.	Please contact your distributor.
	The printer is equipped with the wrong FPGA.	Please contact your distributor.
	The label length is too long. The number of labels per cycle is too much.	Check label length res. the number of labels per cycle.
	Defective photocell.	Change photocell.
	Pressure air is not connected.	Check pressure air.
	External print release signal is missing.	Check input signal.
	Wrong definition of column width res. number of columns.	Reduce the column width res. correct the number of columns.

	The connected bar code scanner signals a device error.	Check the connection scanner/printer. Check scanner (dirty).
	Bad print quality. Printhead completely soiled or defective. Print speed too high.	Increase contrast. Clean printhead or exchange (if necessary). Reduce print speed.
	Scanned data does not correspond to the data which is to print.	Exchange printhead.
	As page number either 0 or a number > 9 is selected.	Select a number between 1 and 9.
	A page which is not available is selected.	Check the defined pages.
	The page is not defined.	Check the print definition.
	Wrong format for customised entry.	Check the format string.
	Wrong format for date/time.	Check the format string.
	No memory card found.	If option hotstart was activated, a memory card must be inserted. Switch off the printer before inserting the memory card.
	Selection of print of several columns and also mirror/rotate.	It is only possible to select one of both functions.
	Loading of temporary hotstart files.	Not possible.
	Faulty definition of shift times (overlapping times).	Check definition of shift times.
	General RSS bar code error.	Check definition and parameter of RSS bar code.

	Protocol error IGP.	Check sent data.
	Printing creation was still active at print start.	Reduce print speed. Use printers' output signal for synchronisation. Use bitmap fonts to reduce generating time.
	Both DPM position sensors (start/end) are active.	Displace zero point sensor Check sensors in service functions menu
	Font and web data is missing.	Run a software update.
	Layout ID definition is missing.	Define layout ID onto the label.
	Scanned data does not correspond to defined ID.	Wrong label loaded from memory card.
	RFID unit cannot recognise a label.	Displace RFID unit or use an offset.
	Error while checking programmed data.	Faulty RFID label. Check RFID definitions
	Error at programming the RFID label.	Label positioning. Faulty label.
	Faulty or incomplete definition of RFID data.	Check RFID data definitions.
	Definition of label data does not correspond with the used label.	Check storage partitioning of used label type
	Error at programming the RFID label (locked fields).	Check RFID data definitions. Label was already programmed.
	Error at programming the RFID label.	Check RFID definitions.

Error 94 Scanner timeout	The scanner could not read the bar code within the set timeout time.	
	Defective printhead. Wrinkles in transfer ribbon. Scanner wrong positioned. Timeout time too short.	Check printhead. Check transfer ribbon. Position scanner correctly, corresponding to the set feeding. Select longer timeout time.
Error 95 Scan layout difference	Scanner data does not correspond to bar code data.	Check adjustment of scanner. Check scanner settings / connection.
Error 96 COM break	Serial interface error.	Check settings for serial data transmission as well as cable (printer-PC).
Error 97 COM general	Serial interface error.	Check settings for serial data transmission as well as cable (printer-PC).
Error 98 No SW PH-FPGA	No printhead-FPGA data available.	Please contact your responsible distributor.
Error 99 Load SW PH-FPGA	Error when programming printhead-FPGA.	Please contact your responsible distributor.
Error 100 Upper position	Sensor signal up is missing (option APL 100).	Check input signals / compressed-air supply.
Error 101 Lower position	Sensor signal down is missing (option APL 100).	Check input signals / compressed-air supply.
Error 102 Vacuum plate empty	Sensor does not recognise a label at vacuum plate (option APL 100).	Check input signals / compressed-air supply.
Error 103 Start signal	Print order is active but device not ready to process it.	Check start signal.
Error 104 No print data	Print data outside the defined label. Selection of wrong module type (design software).	Check selected module type. Check selection of left/right version.

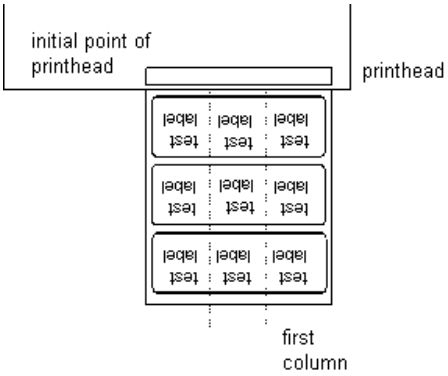
	No original printhead is used.	Check the used printhead. Contact your distributor.
	Wrong Tag type. Tad data do not match the Tag type in the printer.	Adapt data or use the correct Tag type.
	RFID module is not activated. No RFID data can be processed.	Activate RFID module or remove RFID data from label data.
	Transferred GS1-128 (EAN 128) bar code is invalid.	Verify bar code data (see GS1-128 bar code specification).
	Error at EPC calculation.	Verify data (see EPC specification).
	When starting the print order the housing cover is not closed.	Close the housing cover and start the print order anew.
	Transferred EAN.UCC code is invalid.	Verify bar code data (see corresponding specification).
	Printing carriage does not move.	Check gear belt (possibly broken).
	Applicator error.	Check applicator.
	Applicator Left end position	Check LEFT final position switch for correct function and position. Check function of pneumatics for cross traverse.
	Applicator: Right end position	Check RIGHT final position switch for correct function and position. Check function of pneumatics for cross traverse.
	Applicator: Not in print position	Check TOP and RIGHT final position switch for correct function and position. Check function of pneumatics.
	Parameter error XML file.	Please contact your responsible distributor.

12 Additional information

12.1 Column printing

With this printer several columns can be printed, i.e. the information of one column can be printed several times (depending on its width) on a label. Caused by this the use of the complete print width is possible and the generating time is enormously reduced.

For example 4 columns with a width of 25 mm or 2 columns with a width of 50 mm can be printed onto a label with a width of 100 mm. Please note that the first label is always the one with the largest x coordinate, i.e. it has the largest distance to the printhead.

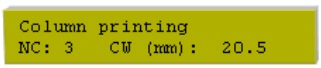


Setting the print of several columns

Press key F to change to the function menu.

Press key ▬ as long as you arrive the 'Printer Initialisation' menu.

Press key ● to confirm the selection.



Press key ▬ as long as you arrive at the menu item 'Column printing'.

Press key ▲ and/or ▼ to set the number of columns.

Press key ◀ and/or ▶ to arrive to the next input field.

Press key ▲ and/or ▼ to set the column width, e.g. 20.0 mm.

Press key ⧉ to start a print with indication of number of labels and number of lines. The number of labels corresponds to the number of labels that are to print.

e.g. columns: 3, items: 4

The first four labels were printed but not label 5 and 6.

12.2 Password

Example 1: The supervisor programs a Memory Card directly with the printer. He stores 10 different labels. As well he adjusts the printer parameters, like contrast, speed, etc. to the corresponding values. The user is only supposed to read the labels from memory card and to print them. Therefore the supervisor blocks the function menu and the entry function by a password.

Example 2: The printer is connected to a PC. The user is only supposed to take the labels dispensed by the printer and stick them on. To prevent, that the labels or the printer set-up will not be changed, the supervisor blocks all printer functions (e.g. function menu, entry menu, etc.) by a password.

Example 3: The user has to change several texts before printing. It is not allowed to change any masks (fonts, position, etc.). Therefore the supervisor blocks the entry of mask and the function menu. By this means the user indeed can print labels, but the printer set-up and the masks of the labels can't be changed.

To receive a most flexible password protection, the printer functions will be divided into several function groups:

1. Function menu: In the function menu the printer parameters can be changed (contrast, speed, mode, ...). The password protection prevents modifications at the printer settings.

2. Memory Card: With the functions of your Memory Card labels can be stored, loaded, ...

Here the password protection has to separate, if none or only reading functions are allowed.

3. Entry functions: With the keys **text** and **code** actual changes of mask or text entry can be done. The password protection either blocks the whole function or allows changes in the text information.

4. Print functions: With key **quant** a print can be produced. In case the printer is connected to a PC, it can be useful, that the user is not able to produce a print manually. So the password protection prevents that prints can be produced manually.

Because of these different function groups the password protection is very flexible. The printer can be adjusted best to its actual order, as only certain functions are blocked.

Define password

In case no password is defined res. the password protection is not activated, all functions can be used. In the function menu you will find the menu item "Password", where the password can be entered and the password protection activated.

Press key ▬◣ as long as to the password menu.

Press key ● to confirm the selection.

The abbreviations have the following meaning:

F	Function menu
MC	Memory card functions
E	Entry menu
D	Print functions

In case the password protection is active, but the function menu is not protected, the password

(4-digit number between 0000 and 9999) has to be entered first, so the above shown display appears. Now changes can be done. In the first line the user can define the password (4-digit number).

Press key ▶ to switch to the next.

Press key ▲ and ▼ to activate/deactivate the password protection (yes/no).

Press key ▶ to change to the second line.

Press key ▲ and ▼ to block/release individual function groups.

(Press key ◀ and ▶ to change from one group to the next one.)

F:	Function menu	0...open 1...locked
MC:	Memory card	0...open 1...only reading access 2...all functions locked
E.	Entry	0...open 1...only masks locked 2...no entry possible
D:	Print function	0...open 1...open 2...no manual print release

Activate blocked function

In case the user wants to perform a blocked function, he has to enter the valid password first.

The entered password has to be confirmed with **E**. In case the correct password has been entered the desired function can be performed. If the entered password was invalid no error message appears but the main menu will be displayed.

12.3 Hotstart

Because of the fact that no battery-buffered SRAM is available, the necessary data has to be saved in another way, i.e. the data is saved onto memory card. Therefore the option memory card is a condition for the hotstart menu item.

The function hotstart contains e.g. that in case of a power failure the currently loaded label can be further processed without any loss of data.
Moreover a print order can be interrupted and to be continued after switching on the printer anew.

At an active hotstart all necessary data is stored on the memory card therefore do not remove the card during operation. When removing during operation, this causes the loss of all data on the memory card.

Saving the current label

In case the hotstart function is set to on, at the start of a print order the data of the current label is saved to the corresponding directory of the memory card.
However the following conditions have to be fulfilled:

- Memory card inserted in drive A
- Memory card not write protected
- Enough free storage space onto memory card
- An error message appears in case these conditions are not fulfilled.

Saving the printer order state

At switching off the printer the state of the current print order is saved to the corresponding directory of the memory card.
However the following conditions have to be fulfilled:

- Memory card inserted in drive A
- Memory card not write protected
- Enough free storage space onto memory card

Loading a label and print order state

In case the hotstart function is set to On, at a new start of printer the saved label data and the print order state is loaded from the corresponding file on the memory card. Because of this reason a memory card has to be inserted at switching on the printer. In case it is impossible to load the data an error message appears.

Starting the print order

In case at switching off the label printer a print order was active, then a print start is released automatically and the required res. actual number of printed labels is refreshed.
In case the print order was stopped at switching off the label printer, it is again set to the stopped mode after switching on the label printer anew.
In case a customized entry was active during switching off the label printer, the window for the first customized variable is displayed.

Refreshing the variable counter

As in the intended file only the start values of the counter are saved, they are refreshed at a new start of the print order by means of the number of printed labels. Each counter is counted corresponding from its start value. Afterwards the position of the current and the next counter update are correctly set by means of the update intervals.

Make sure that in case graphics are onto the label they have to be saved onto memory card.

12.4 Backfeed/delay

Backfeed operating modes

In continuous dispensing mode (IO dynamic continuous, IO static continuous, IO photocell continuous) no optimised backfeed is possible. Because of the fact when changing the print order, then the current label in the offset sector is already printed from the old print order.
With activated double cut no optimised backfeed is possible.
In the sector that is printed when preprint the following label, no date/time variable should be existing, because this could be refreshed before the next start impulse.

Standard

Peel off: After printing the label, it is driven into the dispensing offset and waited there, until the label was removed (photocell) or a new start signal is given (IO dynamic). Afterwards it is again backtracked to the beginning of label and then the next label is printed.

Cutter: After printing the label, it is driven into the cutter offset; the label is cut and then backtracked immediately to the beginning of label (if an operating mode with backfeed is selected). Afterwards the next label is printed, if necessary.

Tear off edge: After printing the last label of a print order it is driven into the tear-off offset and the label res. labels can be taken away. When starting a new print order, first it is backtracked again to the beginning of label and then the next label is printed.
If a following print order is available before driving into the tear-off offset, then it is not driven into tear-off offset but the following label is directly printed.

Automatic

Peel off: After printing the label it is driven into the dispensing offset and then backtracked to the beginning of label either immediately or after the set delay time. When releasing a new start signal (IO dynamic) the next label is immediately printed.

Cutter: This is the same function as for 'backfeed standard' as it is always backtracked immediately to the beginning of label.

Tear off edge: After printing the last label of a print order it is driven into the tear-off offset and then backtracked to the beginning of label either immediately of after the set delay time. When starting a new print order then the next label is immediately printed.
If a following print order is available before driving into the tear-off offset, then it is not driven into tear-off offset but the following label is directly printed.

No backfeed	**Peel off:**	After printing the label it is driven into the dispensing offset and there waited. When releasing a new start signal (IO dynamic) then the next label is immediately printed. Because of the fact that the label is already in the offset, the label is only printed from beginning of offset position, i.e. at the definition of label an accordingly large range must be left free at the top margin of label, because these data are otherwise not printed.
	Cutter:	This is the same function as for 'backfeed standard' as it is always backtracked after cutting immediately to the beginning of label.
	Tear off edge:	After printing the last label of a print order it is driven into the tear-off offset. When starting a new print order, the next label is immediately printed. Because of the fact that the label is already in the offset, the label is only printed from beginning of offset position, i.e. at the definition of label an accordingly large range must be left free at the top margin of label, because these data are otherwise not printed. If a following print order is available before driving into the tear-off offset, then it is not driven into tear-off offset but the following label is directly printed.
Optimised backfeed	**Peel off:**	After printing the label, during driving into dispensing offset the following label is 'pre-printed', if this is already available (generated). When releasing a new start signal (IO dynamic) the already 'pre-printed' label is printed to the end and when driving into the dispenser offset the following label is again 'pre-printed'. In case the following label is not yet available or at the last label of a print order, the dispenser offset is driven as until now, and then for the next label before printing the backfeed to the beginning of label is executed.
	Cutter:	After printing the label, during driving into the cutter offset the following label is 'pre-printed', if this is already available (generated). After the cut it is not backtracked but the already 'pre-printed' label is printed to the end and when driving into the cutter offset the following label is again 'pre-printed'. If the following label is not yet available or at the last label of a print order, the cutter offset is driven as until now, then cut and afterwards the backfeed to the beginning of label is executed.
	Tear off edge:	This is the same function as for 'backfeed standard' as it is only driven into the tear-off offset at the last label of a print order, if no following print order is available.

12.5 Photocells

When using reflection photocells you should observe that the label printer cover is closed and in this way other light (e.g. working lamp) on the photocell is prevented.

Transmission photocell normal

For this photocell type the transmitter is at the top res. the receiver at the bottom, i.e. the infra-red light is sent from the top. In this way the label detection is also from the top. This photocell type is used for standard adhesive labels with gap.

Reflexion photocell normal

For this photocell type the transmitter and receiver are at the bottom, i.e. the light is reflected by the label and taken over from the receiver. This photocell type is used for white (light) continuous labels with a black (dark) bar. The bar is the separator, i.e. it indicates the position of gap and in this way the label start.

Transmission photocell inverse

For this photocell type the transmitter is at the top res. the receiver at the bottom, i.e. the infra-red light is sent from the top. The label detection is, same as for the transmission photocell normal, from the top. However, it is printed differently as for normal photocells, in the translucent place; the label printer recognizes the opaque place as gap. This photocell type is used frequently when printing foils.

Reflexion photocell inverse

For this photocell type the transmitter and receiver are at the bottom, i.e. the light is reflected by the label and taken over from the receiver. This photocell type is used for black (dark) continuous labels with a white (light) bar. This bar is the separator, i.e. it indicates the position of gap and in this way the start of label.

When using transmission photocells inverse, the label printer must measure a difference of 2.5 V and for reflection photocells inverse 1 V between translucent and opaque material. Otherwise the label printer does not recognize a difference between label and gap (bar).

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